

VM 577P Herd Production Medicine

Basis of Marketplace Economics

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Analyze production medicine options from your client's perspective (*Is it economically beneficial for your client to implement your recommendation or consume your service or not?*) and yours (*Is it economically beneficial for me to offer a particular service or not?*). To do this, you must understand how the system works. These models can be implicit (in one's head) or formal, such as a spreadsheet in which goals are established, assumptions made, information gathered and decisions made after an explicit analysis. This handout is step zero toward understanding the economic fundamentals behind marketplace and production economics guiding producer decisions.

Uncertainty is inevitable. What are the likely trends and fluctuations in future input and output prices? Because purchases (expenses) and sales (income) are separated by time, bad timing and poor prediction in volatile markets can cause severe losses if not bankruptcy. Unpredictable external factors impact production systems, such as weather, and markets. Rare "Black Swan" events, such as a banking crisis, severe drought, a sharp recession or a war impacting crude oil supplies, potentially contribute serious financial risk. Much of managing risk is considering "best case" and "worst case" scenarios for alternatives. Gain from a change is uncertain.

These concepts are within the disciplines of applied farm-level agricultural economics, managerial microeconomics, engineering economics, and business management decision making. These are typically taught in upper level farm management classes or in MBA classes. Because these are widely taught, many resources are readily available.

Concepts to understand are:

- The nature of competition; where "excess" profits are occurring, competition emerges
- Basic marketplace law of supply and demand and its effects on supply, demand, and prices
- Time value of money (net present value, future value, annuity), risk premiums, inflation, real and nominal interest rates
- Types of risk, particularly market price (inputs and products) risk, and how these are mitigated (diversification, forward pricing, contracts, futures). Veterinary risk focus is usually too myopic (e.g., disease prevention)
- Types of costs - fixed vs. variable, marginal vs. average, joint, opportunity, sunk, ownership, cash flows.
- How economies of scale affect the industry long run cost curve, how the short run cost curve of the individual firm relates to the long run cost curve, and the drive for innovation
- How supply-demand relationships affect price of inputs (feedstuffs, fuel, labor) and the cycles of and lags between these, capital investments (land, facilities, machinery) and the effect of government programs (transfer payments, subsidies, tax policies) on these prices
- Enterprise production functions, the relationships between input costs and output revenue at the various points along the production curve and the relationships at the optimal point.
- UCOP (unit cost of production)
- Key farm financial statements (cash flow, farm income, and net worth) and key financial measures and ratios
- Enterprise analysis (partial budgets, decision trees, cost-benefit) and ownership cost analysis tools.
- Marginal analysis, sensitivity analysis, scenario analysis

Some Farming Facts:

1. 7% of farm and ranch businesses produce 80% of ag revenues (12/09. [D Kohl](#), USDA Ag Statistics)
2. 80% of farm expenses are linked to oil and natural gas prices ([Dr. David Kohl](#), [Ag Economist](#))
3. ~50% of livestock production costs are feed costs
4. Farm family living expenses are typically 75-80% of the cost of a new Corvette

Basic Economic Tenets:

Mankiw's 10 Principles of Economics, Dr. Greg Mankiw, Harvard economics professor

<http://gregmankiw.blogspot.com/> <http://www.swlearning.com/economics/mankiw/principles2e/principles.html>

How People Make Decisions

1. **People face tradeoffs**
To get one thing, you have to give up something else (opportunity cost). Making decisions requires trading off one goal against another.
2. **The cost of something is whatever you give up to get it**
Decision-makers have to consider both the obvious and implicit costs of their actions.
3. **Rational people think at the margin**
A rational decision-maker takes action if and only if the marginal benefit of the action exceeds the marginal cost.

4. **People respond to incentives**

Behavior changes when costs or benefits change [and depend on how these are presented].

How People Interact

5. **Trade can make everyone better off**

Trade allows each person to specialize in the activities he or she does best. By trading with others, people can buy a greater variety of goods or services.

6. **Markets are usually a good way to organize economic activity**

Households and firms that interact in market economies (an economy that allocates decisions through the decentralized decisions of many) act as if they are guided by an "invisible hand" that leads the market to allocate resources efficiently. The opposite of this is economic activity that is organized by a central planner within the government. Markets require private property rights and a money exchange system.

7. **Governments can sometimes improve market outcomes**

When a market fails to allocate resources efficiently, the government can change the outcome through public policy. Examples are regulations against monopolies and pollution.

How the Economy as a Whole Works

8. **A country's standard of living depends on its ability to produce goods and services**

Countries whose workers produce a large quantity of goods and services per unit of time (productivity) enjoy a high standard of living. Similarly, as a nation's productivity grows, so does its average income.

9. **Prices rise when the government prints too much money**

When a government creates large quantities of the nation's money, the value of the money falls. As a result, prices increase, requiring more of the same money to buy goods and services.

10. **Society faces a short-run (1 – 2 years) tradeoff between inflation and unemployment**

Reducing inflation often causes a temporary rise in unemployment. This tradeoff is crucial for understanding the short-run effects of changes in taxes, government spending and monetary policy.

Common Sense Economics: What everyone should know about wealth and prosperity, revised ed. (2010). Gwartney JD, RL Stroup, DR Lee, TH Ferrarini St. Martin's Press <http://commonsenseeconomics.com/index.php>

12 Key Elements of Economics (For explanation of these items, see the website or, preferably, the book)

1. Incentives matter
2. There is not such thing as a free lunch
3. Decisions are made at the margin
4. Trade promotes economic progress
5. Transaction costs are an obstacle to trade
6. Prices bring the choices of buyers and sellers into balance
7. Profits direct businesses toward activities that increase wealth
8. People earn income by helping others
9. Production of good and services people value, not just jobs, provides the source of high living standards
10. Economic progress comes primarily through trade, investment, better ways of doing things, and sound economic institutions
11. The "invisible hand" of market prices directs buyers and sellers toward activities that promote the general welfare
12. Too often long term consequences, or secondary effects, of an action are ignored

7 Major Sources of Economic Progress

1. **Legal system:** The foundation for economic progress is a legal system that protects privately owned property (land, natural resources, labor, capital, entrepreneurial talent) and enforces contracts in an even-handed manner
2. **Competitive markets:** Competition promotes the efficient use of resources and provides an continuous stimulus for innovative improvements
3. **Limits on government regulations:** Regulatory policies that reduce trade also retard economic progress
4. **An efficient capital market:** To realize its potential, a nation must have a mechanism that channels capital into wealth-creating, productive projects
5. **Monetary stability:** A stable monetary policy is essential for the control of inflation, efficient allocation of investment, and achievement of economic stability [prior - Inflationary monetary policies distort price signals, undermining a market economy]
6. **Low Tax rates:** People will produce more when they are permitted to keep more of what they earn
7. **Free trade:** A nation progresses by selling goods and services that it can produce at a relatively low cost and buying those that would be costly to produce

10 Elements of Clear Thinking about Economic Progress and the Role of Government

1. Government promotes economic progress by protecting the rights of individuals and supplying a few goods that are difficult to provide through markets
2. Allocation through political voting is fundamentally different than market allocation, and economic analysis indicates that the latter is more consistent with economic progress [prior - Government is not a corrective device]
3. The costs of government are not only taxes
4. Unless restrained by constitutional rules, special-interest groups will use the democratic political process to fleece taxpayers and consumers
5. Unless restrained by constitutional rules, legislators will run budget deficits and spend excessively
6. Government slows economic progress when it becomes heavily involved in providing favors to some people at the expense of others
7. The net gain to those receiving government transfers is less, and often substantially less, than the amount they receive [prior - The costs of government income transfers are far greater than the net gain to the intended beneficiaries]
8. Central planning replaces markets with politics, which wastes resources and retards economic progress
9. Competition is just as important in government as in markets
10. Constitutional rules that bring the political process and sound economics into harmony will promote economic progress

12 Key Elements of Practical Personal Finance

1. Discover your comparative advantage
2. Be entrepreneurial. In a market economy, people get ahead by helping others and discovering better ways of doing things
3. Use budgeting to help you save regularly and spend your money more effectively [prior - Spend less than you earn. Begin a regular savings program now]
4. Don't finance anything for longer than its useful life
5. Two ways to get more out of your money. Avoid credit-card debt and consider purchasing used items
6. Begin paying into a "real world" savings account every month
7. Put the power of compound interest to work for you
8. Diversify – don't put all of your eggs into one basket
9. Indexed equity funds can help you beat the experts without taking excessive risk
10. Invest in stocks for long-run objectives, but as the need for money approaches, increase the proportion of bonds
11. Beware of investment schemes promising high returns with little or no risk
12. Teach your children how to earn money and spend it wisely

Ten Key Ideas: Fundamental economic concepts that open the door to the economic way of thinking
Russell Roberts, George Mason University, Stanford Hoover Institution

The Ideas: (see <http://www.econlib.org/library/Topics/Guides/TenKeyIdeas.html> for links to explanations)

1. Incentives matter
2. Understanding costs [prior - The concept of opportunity cost]
3. How markets work
4. How prices emerge
5. Comparative advantage
6. The division of labor [prior - The division of labor and the power of specialization and trade]
7. The extended order of cooperation [prior - The spontaneous extended order of cooperation without central coordination]
8. Externalities
9. How politicians behave [prior - How politicians behave, the logic of political survival and why it is hard to do the right thing]
10. What politicians can and cannot do

Agricultural Economics Resources:

For further resources, See "Applied Agricultural Economics" in "In-Print and On-Line Production Medicine Information Resources

<http://www.vetmed.wsu.edu/courses-jmgay/PMCurrentProdMedRefs.htm#Applied Agricultural Economics>

Following Important Commodity and Economic Numbers

Below are links to financial index and commodity price charts, which are important for two reasons:

- 1) Producers tend to place more confidence in veterinarians who follow current commodity prices and trends affecting the producers part of the livestock industry.
- 2) Trends in selected prices and indexes indicate where input prices (fertilizer, diesel fuel, feed) and output prices (feeder calves, cull cows, milk) are likely headed. Following these, you can get an idea of where your clients' business expenses are income are likely headed and, in turn, yours.

Drover's CattleNetwork - [Quotes & Charts](#) An excellent one-stop source of livestock-related market information:

Click on the "C" in the Q/C/O in the right Links column for a price or index to see a chart of its daily highs, lows and closes for the past 4 months or so. If it is a CBOT or CME chart, scroll down and click "month." That will graph 5+ years of monthly highs, lows and closes, giving a clear picture of volatility and trends.

How do you ... Use CattleNetwork to track market trends? Drovers J [8/14/09](#)

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Bringing back the morning numbers tweet Posted by [Christopher S Penn](#) on May 22, 2010
<http://www.christopherspenn.com/2010/05/bringing-back-the-morning-numbers-tweet/>

[This blog post provides a brief interpretation of some financial indexes and the opportunity to access them via Twitter I've added the links. There are considerably more here than most people follow.]

. . . . I'm bringing back the financial morning tweet, for my own benefit if not for everyone else's. Every morning that I do #the5 (see this post for what #the5 is all about), I'll do the numbers as well. Here's what it will look like:

DJIA -81 SPX -11 VIX 40 TED 35.7 LIBOR91 51 OIS 22 MSCI 1074 BDI 3844 30yr 4.87 BCF 71.24 GLD 1183.40 RR 12.25 #econ

If you're interested in financial data but have no idea what any of this means, let's take a cruise through it.

[BBC Market Data](#)

[DJIA](#): The Dow Jones Industrial Average. While it's not the be-all/end-all of the state of our economy, the Dow is the most popular and well known indicator in the press and media, so it's included for its psychological impact. Measured in dollars, and in the mornings, it'll be listed as the futures, or what investors are predicting will happen the moment the markets open up. - [wiki](#)

[SPX](#): The Standard & Poor 500. One of the better measures of the overall economy, the S&P 500 includes the stock prices of 500 companies from around the business nation. Measured in dollars, and in the mornings, it'll be listed as the futures, or what investors are predicting will happen the moment the markets open up. - [wiki](#) [wikiinvest](#)

[VIX](#): The Chicago Board Options Exchange Volatility Index. One measure of seeing how confident investors are. When the VIX is low (under 20), there's not much volatility in the market. When the VIX is high (over 30), it means there's a lot of volatility and not a lot of confidence. Measured in basis points; 100bp = 1%. [Introduction](#) - [wiki](#)

[TED](#): The TED spread. This is the difference between 3 month Treasury bill rates and the 3 month LIBOR (London Inter-Bank Offered Rate). The TED spread indicates credit risk in the economy – when the spread is wide (more than 50), it means that the banking system is in trouble. Measured in basis points; 100bp = 1%. - [wiki](#)

[LIBOR91](#) [LIBOR2](#): 91 day, or 3 month London Inter-Bank Offered Rate. LIBOR indicates the cost for banks to borrow from each other. LIBOR indicates how expensive money is to borrow, and higher LIBOR rates will correspond to higher borrowing rates for businesses and consumers. Measured in basis points; 100bp = 1%. - [wiki](#)

[OIS31](#): 31 day or 1 month Overnight Indexed Swap rate. OIS measures how much liquidity – cash – is in the financial system. Higher OIS means less cash is in the system, while low OIS means lots of easy money is floating around. Measured in basis points; 100bp = 1%. - [wiki](#)

[MSCI](#): The Morgan Stanley Capital International. The MSCI is an index of 1,500 world stocks from developed nations, giving a broad overview of the world's corporate performance. As MSCI goes up, so do the world's economies. Measured in dollars. - [wiki](#)

[BDI](#): The Baltic Dry Index. BDI measure the cost of shipping bulk dry cargoes. This is important because unlike speculative investments, BDI measures the price of actual goods in transit. You don't buy space on a cargo ship unless you have something you're selling and shipping. Higher BDI indicates more demand for shipping and means the economy is growing. Measured in dollars. - [wiki](#)

[30yr](#): The 30 year fixed mortgage rate as published by Bloomberg. The most standard kind of mortgage, mortgage rates go up when the cost of borrowing money goes up and vice versa. Measured in percentage points. [BBC Commodities](#)

[BCF](#): Brent Crude Futures, the price of a barrel of Brent crude oil. BCF tells you how expensive oil is on the market. Oil fuels your car, heats your house, and indirectly impacts consumer goods (since most everything is made of some plastic), as well as food

prices – most fertilizer in agriculture is derived from oil. Interestingly enough, if you divide the BCF number by 25, you get roughly the price at the pump in a few weeks. Not a hard and fast rule, but a useful forward-looking indicator. Life gets more expensive when oil prices go up – but pollution and consumption goes down. Measured in dollars. [Trading Charts](#) [BBC Brent Crude Oil year](#)

GLD: The price of a troy ounce of gold. Gold is one of the world's benchmarks for inflation. As a currency inflates or as an economy deteriorates, people buy gold as a hedge, a way to protect themselves from loss. Gold itself isn't really useful – it's just a lump of metal – but it doesn't lose physical mass sitting in a vault in the same way that a stock can lose value rapidly on speculation. Measured in dollars. [Kitco gold](#) [Trading Charts](#) [BBC Forex Gold year](#)

RR: Rough Rice. This is the world price of a bushel of rough rice, or rice just harvested from the fields. 20% of the nutrition of all humanity comes from rice, so when the price of rice goes up, it's effectively a tax on the world. If the price of rough rice goes really high (above 15) you will see headlines in the world news about food shortages and hunger with greater frequency. Measured in dollars. [CME Rough Rice](#) [Trading Charts](#)

What does it all mean?

Individually, **each indicator tells you something about how the world is doing financially.** Some indicators tell you about banks and governments. Others tell you about commodities, raw materials, or corporations. Put together, they're a very diverse view of the world economy and can even predict the future a little bit.

For me, I look at them to see how the world is doing. What's in the headlines very often has financial underpinnings. **If you know from these indicators what's happening financially today, you'll know what the business and economic news will be in a few days or weeks ahead.**

If the price of oil skyrockets, you'll see changes in the news and daily life. Seeing BCF spike now will tell you that those changes will be coming in 4-6 weeks as that barrel of oil eventually works its way into finished goods that consumers use.

Seeing the price of rough rice spike today and stay consistently high for a month will tell you that poor countries who are dependent on rice as a nutritional staple will be headed for famine if the price doesn't come down.

Seeing the VIX skyrocket as it did a few years ago gave insiders advanced notice of the major stock market crashes long before the general public knew. Way back in the day, I saw the VIX leap above 30 and stay there in the summer of 2007. I dumped my entire retirement portfolio into a money market account in reaction to it. While I made almost no money in the following two years, I managed to completely avoid the market crash, too and saved my retirement from disaster.

I'd encourage you to not just pay attention to these numbers or tweets, but to also pick your own indicators, your own interpretation of what's important in the world. **You'll know long before your friends and colleagues what's going to happen if you study the numbers and learn what they mean.**

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[Commodity Futures Market Price Quotes](#)
BBC News Market Data - [Overview](#)

[TFC Commodity Charts](#) - [personalized charts menu](#)
<http://futures.tradingcharts.com/menu.html>

[Commodities](#)

Copper - [Copper cash year](#)
Corn - [Corn Futures year](#)
Crude Oil - [Brent Crude Oil year](#)
Gold - [Forex Gold year](#)
Oats - [US Futures year](#)
Soybeans - [US Futures year](#)
Wheat - [US Futures year](#)

Brent Crude - [Monthly Trading Chart](#)
Natural Gas - NYMEX [Monthly Trading Chart weekly](#)
Corn - CBOT [Monthly Trading Chart weekly](#)
Feeder Cattle - CME [Monthly Trading Chart weekly](#)
Live Cattle - [CME Monthly Trading Chart weekly](#)
Milk - BFP [Monthly Trading Chart weekly](#)

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Kansas Livestock and Meat [Marketing Charts](#)
US DOE Gasoline and Diesel Fuel [Update](#)
SW Kansas Premium Dairy Hay - [chart](#)