Economic Lessons from Playing Games the “Wrong Way”

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How can you play a game incorrectly?

Playing a game in a way that you don't find enjoyable.

How does Dr. Frye Play Games the “Wrong Way?”

- Substituting social-norms and immersion for market productivity.
  - Benefit: Player experiences more game content at a faster pace.
  - Cost: Pacing of player experience is a core mechanic in game design.

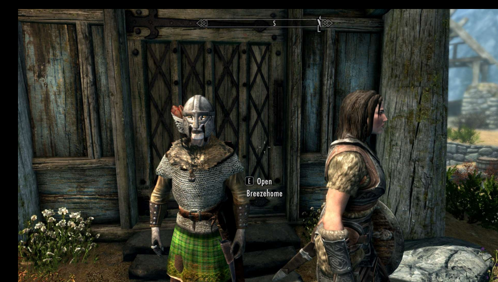
Lesson: (Diminishing Marginal Utility) Incremental increases in objective gains lead to smaller increases in subjective personal benefit.

“Wow, the faster I play through this game, the more bored I get!”

Monopsony – Captive Labor Supply

- Spouses/adopted children in Skyrim serve as crafting and resource nodes.
  - Analogous to Becker’s (1965) household production model.
- Children (gatherers) occasionally request an allowance:
  - Player can choose between 5 and 1000 gold.
  - Player can also choose not to pay.

Lesson: A single-wage setter with a captive labor supply is a monopsony and not a competitive labor market.



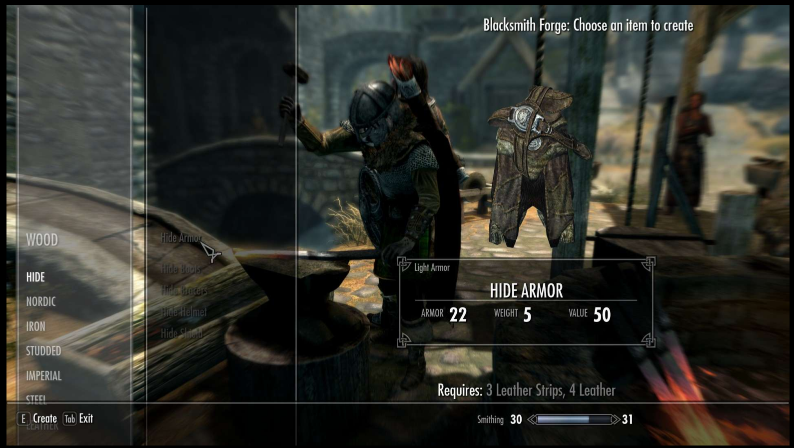
Alchemy – Search/Information Costs

- Alchemy in Skryim requires exploration and experimentation to discover the effects of various ingredients when mixed into potions.
- Online wikis and tutorials reduce search and information costs:
  - Player can easily find rare ingredients.
  - Player can amass wealth selling only the most valuable potions.
- In a "real" competitive market, such an outcome would be improbable:

Lesson: Cheap information alone does not eliminate long-run profit opportunity. Competition reacting to cheap/new information does by removing the opportunity for arbitrage.

Value Added Margin-Based Production

- In its initial release, Skyrim awarded XP points for crafting based on quantity, alone.
- After a later update, crafting awards XP based on the value of crafted items.
  - Directly incentivizes value-added production.
  - Player benefits from crafting, refining, and enchanting an item to add value to cheap resources.



Lesson: Value-added is the actual driver of profit-maximizing production choices, not sheer output.

Moral: Realistic Game Economics are Hard to Balance.

- Static markets in single-player games.
- Specialization is often an illusion.
- Finite exhaustible content vs. real world flows.
- Simplicity as defensive design.
- “Fun” takes precedence over realism.

Connected Activities

- Tradecraft: A Realm of Markets
- Six fantasy RPG inspired activities for a microeconomics classroom.
- Materials (Low Cost):
  - Activity sheets & instructor guides.
  - Writing utensils.
  - d6 dice or similar RNG apps.

Student Name:____________________

Creating a Character Sheet

Productivity and Exchange — *Activity 1*

Character Portrait

(Be creative!)

Character Name: John Econ

Background: Gnome

Backgrounds:	Daily Energy (Labor Hours)	Trait 1	Trait 2
Human	8 LH	+2 Crops	+1 Tools
Elf	6 LH	+3 Spells	+2 Med
Dwarf	10 LH	+5 Tools	-4 Med
Halfling	5 LH	+3 Crops	+3 Med
Dragonborn	9 LH	+1 Spells	+1 Tools
Gnome	7 LH	+2 Crops	+2 Spells

After selecting a character *Background* and drawing their portrait, roll 2 D6 and record the sum. This sum is your character's *Attribute Points*. You may distribute these points to any of the crafts outlined below. For each *Attribute Point* allocated to a craft, you will increase your character's MPL for that craft by +1.

Attribute Points Rolled: 8

Table 1: Attributes and Marginal Productivity

Skills/Output	Base Stat:	+Attribute Points	+ Trait 1	+ Trait 2	Overall MPL
Agriculture: Crops	5	4	+2	–	11
Smithing: Tools	5	0	–	–	5
Magic: Spells	5	4	–	+2	11
Alchemy: Medicine	5	0	–	–	5

Overarching Semester Activities

	Activity	Associated lessons & concepts.
Module I: **Introduction to exchange and the basic structure of markets.**	1. Creating a Character Sheet.	Opportunity cost and comparative advantage.
	2. Trading at Ye Olde Fantasy market.	Market equilibrium, consumer surplus, and producer surplus.
Module II: **Economic policies and their effects on price & welfare.**	3. Adjusting the Jarl's Coffers.	Taxes and subsidies
	4. Slums, Lords, and Slumlords.	Price controls
Module III: **Alternative systems of competition.**	5. Joining the Fantasy Fortune 500	Theory of the firm, perfect competition and monopolies.
	6. A Game of Games	Game Theory & Competition

Creating a Character Sheet

Lesson: Production possibilities and exchange based on comparative advantage.

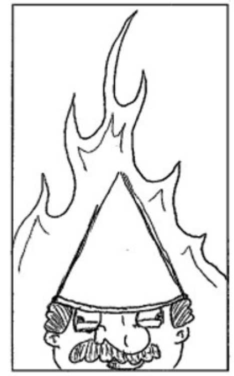
Features:

- 6 character backgrounds with varying specializations over 4 crafts.
- Bilateral bargaining with the underlying goal of "get more of everything."

Student Name:____________________

Creating a Character Sheet

Productivity and Exchange — *Activity 1*



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Trading at Ye Olde Fantasy Market

Lesson: Market equilibrium and consumer & producer surplus.

Features:

- One good from Activity 1 is picked.
- Random die rolls and MPL from Activity 1 impose MWP and MWA.
- Students act as both buyers and sellers in a pit market.

Trading at Ye Olde Fantasy Market

Market Worksheet — Activity 2

Character Name:	______________	Good Traded Today:	______________

Setting Your Price — and Your Limits

Today, everyone in the realm trades a single good. Unlike the private bargaining of Activity 1, you now face an open market with every other character in the class. You are both a potential seller (you can produce and sell units, up to your capacity, if the price is worth your while) and a potential buyer (you can purchase units, up to your personal need, if that's cheaper than making it yourself) at the same time. But neither role is unlimited: once your capacity runs out you can't sell anymore, and once your need is met you have no reason to keep buying.

Your Cost to Produce (Ask Price)

Pull your character's Overall MPL for today's good from your Activity 1 Character Sheet, and use the Wage Rate announced by your instructor to calculate your cost to produce one more unit:

Cost per unit = Wage Rate ÷ Overall MPL

Good Traded	Overall MPL (from Activity 1)	Wage Rate (gold / hour)	Cost to Produce 1 More Unit (Your ASK price)

The capacity of units I can sell in a trading round is: $MPL * Daily\ Energy =$______________units.

Your Quest Value (Bid Price)

Roll 2 d6 and add the Base Value announced by your instructor to the sum of your dice. This represents how much your character values obtaining one more unit of this good today.

2 d6 Roll	+ Base Value	= Your Quest Value (Your BID price, per unit)

Your Personal Need (Demand Limit)

Your character's quests only call for so much of this good this week — record the Personal Need (Q) announced by your instructor. This is the most units you'll want to buy, no matter how good the price is:

Personal Need This Session (Q) (announced)

Note: Think of your personal need and your bid price as your personal budget. If my personal need is 10 units and I am willing to pay $25 per unit, then my budget is effectively $250 for each trading round.

Adjusting the Jarl's Coffers

Lesson: Taxes, subsidies, deadweight loss, and wealth redistribution.

Features:

- Students divided into 4 "villages." – 2 taxed, 2 subsidized.
- Endogenous supply & demand demonstrate importance of relative elasticity on tax/subsidy incidence.

Adjusting the Jarl's Coffers

Market Worksheet — Activity 3

Character Name:	______________	Good Traded Today:	______________

The Jarl's Decree

The war is over, but the treasury is empty yet the realm must rebuild. The Jarl's advisor — who has never once balanced a ledger — has convinced him to test a different policy in each village of the realm before deciding which to adopt everywhere. Read only the entry below that matches your assigned village.

- Crown Tax: "The war has emptied the treasury. The Crown's collectors will levy a tax on every unit sold, paid by the seller at the moment of sale."
- Crown Subsidy: "This craft is vital to the realm's future. The Crown will pay every seller a bonus for each unit sold, straight from the treasury."

Policy	Applies to My Village?	Value (fill in only your village's row)
Crown Tax (per unit, paid by seller)	☐ Yes ☐ No	__________ gold
Crown Subsidy (per unit, paid to seller)	☐ Yes ☐ No	__________ gold

Setting Your Price — and Your Limits

This part is identical to Activity 2, regardless of which village you're in — the policy hasn't entered yet. You are both a potential seller (produce and sell, up to your capacity) and a potential buyer (purchase, up to your personal need) at the same time.

Your Cost to Produce (Ask Price)

Cost per unit = Wage Rate ÷ Overall MPL

Good	Overall MPL (from Activity 1)	Wage Rate (gold / hour)	Cost to Produce 1 More Unit (Your ASK price)

Later Activities (Works in Progress)

- Slums, Lords, and Slumlords.
  - Similar setup to Activity 3 with price floors and ceilings.
  - One ceiling village and one floor village are allowed to circumvent enforced policies.
- Joining the Fantasy Fortune 500.
  - Double auction with villages divided by form of competition.
  - 1 monopoly village, 1 monopsony village, 1 oligopolistic, and 1 competitive.
- A Game of Games.
  - Basic predation (market entry) and repeated prisoner's dilemma (cartels).

Thank you!

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