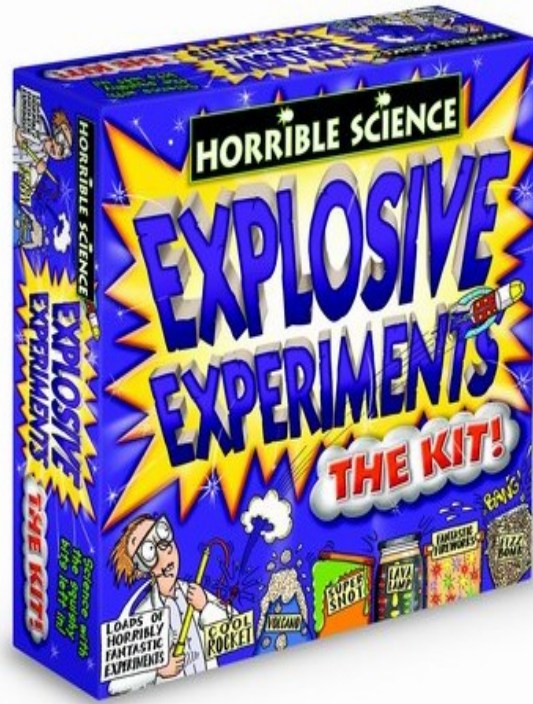


Classroom Experiments



Learning by doing

John Sloman (EN)

Classroom Games/ Experiments



- What are they? Paper-based or online
- Often a simplified version of a research experiment
- Individuals make decisions that determine pay-offs
 - Individual/group choice
 - Interactive choice
- 20 – 40 minutes
- Many games are market simulations
- Can generate data for later discussion

Game 1: A market game



- **Background**
- **One of the first classroom experiments (Chamberlin, JPE 1948)**
- **Referring to this game Holt (1996) stated that it:**

“would be my clear first choice if I were limited to a single lecture in a microeconomics course at any level”

Game 1: A market game



- **Students divided into buyers and sellers**
- **Students given cards**
 - **Red for sellers of the item**
 - Number on card gives cost of item in £s
 - Want to sell *above* value of card
 - **Black for buyers of the item**
 - Number on card gives value of item to buyer (wtp) in £s
 - Want to buy *below* value of card
- **Trading takes place**
 - Individual buyers and sellers haggle and agree prices
 - Mark their gain on their sheet
 - No deal gives no gain or loss

Game 1: Reflections

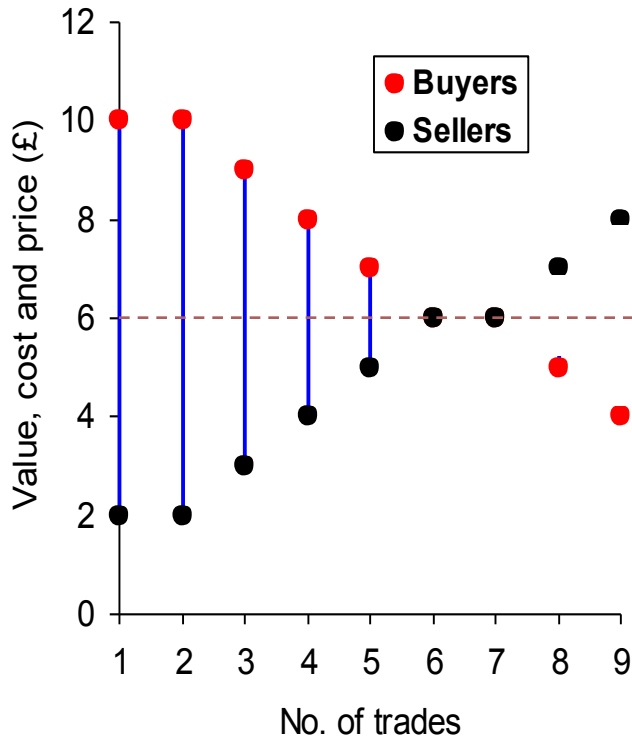


- **Prices normally converge to competitive equilibrium**
- **Price convergence tends to be slower and variance of prices is greater than oral double auction**
- **However pedagogic advantages**
- **Sometimes negotiating ability of one side of the market (normally buyers) is much better**

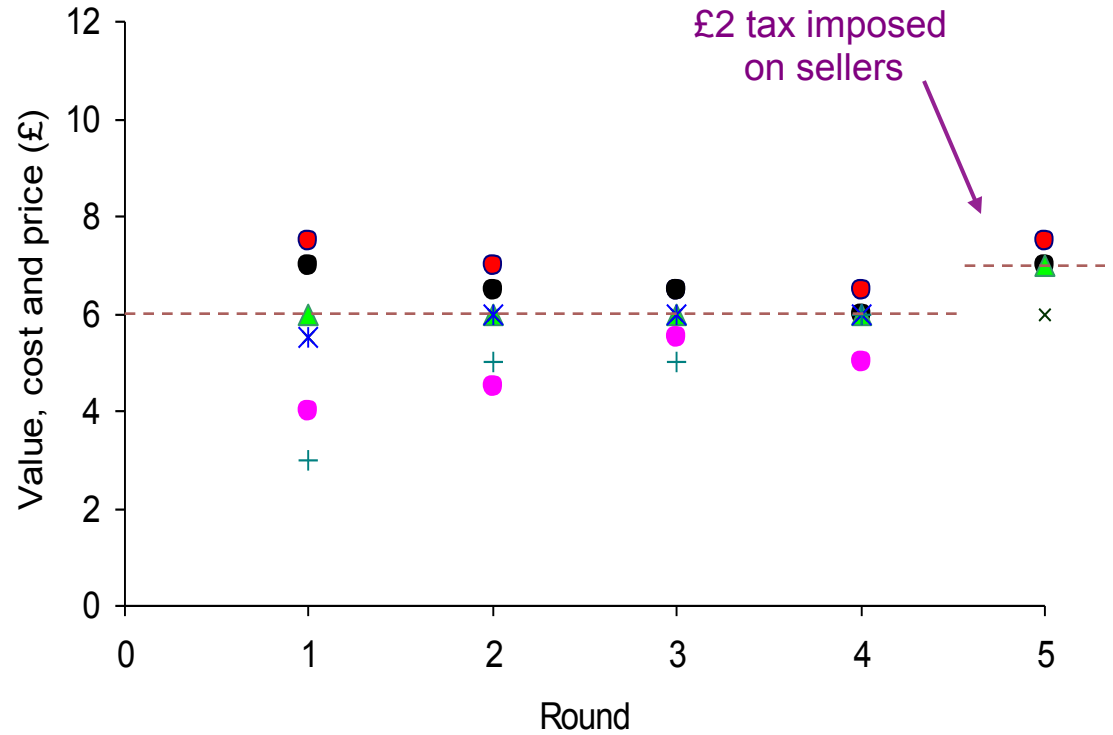
Game 1: Reflections



- **Easy to demonstrate producer and consumer surplus**
- **Helps introduce the concept of efficiency**
- **Can discuss information issues**
- **Can introduce a tax of £x on suppliers or price ceilings/floors**
- **Monopoly version (one person has all black cards)**



(b) Potential gains



(b) One we tried earlier

An 18 player game

Benefits of games



- **Promote a more active learning environment and achieve deeper learning**
- **Experiential learning**
- **Applicability of abstract theory**
- **Fun/engaging**
- **Dealing with increasing heterogeneity**
- **Evidence that they have a positive impact on learning**

Overcoming Potential Drawbacks



- **Could have implications for the quantity of material “covered”**
 - **But deeper learning**
- **Will students take them seriously?**
 - **Linking them to other activities**
- **What if they don't work or contradict the predictions of theory**
 - **Useful for examining assumptions**
- **Will they suit all students? – different learning styles**

Game 2: Production function game



- **Activity**
 - Production runs (2) in a factory, involving moving balls, cups or pots from one place to another
 - Extra workers are added one at a time
- **Equipment**
 - About 30 balls (plus buckets), cups or pots
- **Students divided into two teams**
 - Object to get as many balls/cups from one end to the other in 25 seconds

Game 2: Reflections



- **Easy to set up and fun to play**
 - Can bring alive a potentially dry subject area
 - Flexible: can be played with 1, 2 or more teams
- **Can demonstrate**
 - Diminishing returns
 - *TPP, APP* and *MPP*
 - Can derive *TRP, ARP, MRP, TC, AC, MC, TR, AR, MR* and Profit
 - Shifts and movements along product and cost curves from technological change
 - Effects of changing fixed and variable costs

Game 3: Contribute or Keep



- **Aim**
 - Aim is to make as much money as possible, irrespective of what others make
- **Activity**
 - Each person/group is given four cards of the same value (e.g. four threes or four queens)
 - Each person/group plays two cards each round
- **Scoring**
 - Black cards have no value
 - Red cards are worth £10 for *everyone* if played and £5 just to the individual/group if not played.

Game 3: Reflections



- **Very easy to set up and fun to play**
 - Can easily be played in a tutorial/seminar
 - Flexible: can be played with up to 13 individuals or groups
- **Can demonstrate**
 - Public goods and external benefits
 - Prisoners' dilemma and Nash equilibrium
 - Collusion versus competition
 - Motivation and altruism

Game 4: A 'Keynesian Beauty Contest'



- **A game about investor expectations**
 - predicting share prices based on what you think other people will do
- **Simple to play**
 - No equipment required other than:
 - a calculator for the tutor
 - a whiteboard/flipchart for recording results
- **The game (each round)**
 - Students have to select a number from 0 to 100
 - A prize is given in each round to the student who selects a number closest to $2/3$ of the mean

Game 4: A 'Keynesian Beauty Contest'



- Each person of ***N-players*** is asked to choose a number from the ***interval 0 to 100***.
- The winner is the person whose choice is closest to ***p*** times the ***mean*** of the choices of all players (where ***p*** is, for example, ***2/3***). The winner gets a ***fixed*** prize (e.g. a chocolate).
- The same game should then be repeated for ***several periods***. Students ***are informed*** of the ***mean***, ***2/3 mean*** and ***all choices*** after each period.
- Students should write down each time (or at the end) a brief comment about how they came to their choice.
- Time to think in each period: about ***3 minutes***

Game 4: Reflections



- [Link1](#) [Link 2](#)
- **At the end**
 - **Students can be asked to explain their decisions**
- **Can demonstrate:**
 - **Expectations formation**
 - **Iterative thinking / progression**
 - **Movement to Nash equilibrium**

Computerised Experiments



- **Advantages**
 - “Free ride” on existing resources
 - Little preparation
 - Speedy
 - Automatic tabulation of results
 - Some are difficult to do hand-run
- **Limitations**
 - Class size
 - Computing facilities
 - Time constraints

More Information



- **See Economics Network site for a range of games and tips on their use**
 - <http://www.economicsnetwork.ac.uk/themes/games.htm>
 - http://en.wikiversity.org/wiki/Economic_Classroom_Experiments
- **See also: Jon Guest, ‘Reflections on ten years of using economics games and experiments in teaching’, *Cogent Economics and Finance* (26/11/15)**
 - <https://www.cogentoa.com/article/10.1080/23322039.2015.1115619.pdf>