

# Incentives Matters: A case study of American Indians

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## I. Intro Comments

- A. What makes native Americans well off pre-reservation versus today?
  - What explains economic growth / prosperity everywhere?
  
- B. Key Theme: Incentives Matter
  - When living in a harsh environment, you have to get incentives right...or you die (no safety net).
  - How do people produce and thrive? What institutions are necessary for this to happen?
  - Native American institutions are an example of how individuals internalize costs and benefits of actions. That is, how they get the incentives right.
  
- C. Historical Context of Madison Buffalo Jump
  - High limestone cliff
  - Used for approximately 2,000 years
  - Buffalo jump abandoned with introduction of horse in early 1700s
  - Given the migratory nature of buffalo, plains Indians were necessarily nomadic (Montana Department of Fish Wildlife and Parks, 2011).

## II. Buffalo Production Function

- A. How is buffalo meat produced?
  - Convert live buffalo to buffalo meat
  - How did this happen?
    - ✓ Buffalo don't run off cliffs on their own
  
- B. Hunt Coordination
  - Hunt leader's job is to organize hunt
  
  - Build stone walls to channel buffalo
    - ✓ Found 4 mile rock wall to channel buffalo on Madison River near Ennis
  - Pre-equestrian Indians used two tactics to harvest buffalo
    - ✓ The surround: Indians surrounded buffalo causing them to run in circles while hunters slaughtered them with arrows

- ✓ The drive (pedestrian drive): ran buffalo off jump, a technique requiring costly coordination and planning
  - Buffalo drives were more successful in the fall when the bulls had separated themselves and buffalo were more likely to be moving off the high plains
- C. Production function changed by introduction of new technology
- Arrival of horse changed production function

### III. Getting Incentives Right

- A. Correct incentives stimulate investment
- Hunting skills required investment in time and equipment
    - ✓ Invested in horses / bows (capital) and horse riding / hunting skills (labor)
    - ✓ Hunter entitled to keep skin and best meat cuts
    - ✓ When men finished a hunt, they located their buffalo by marks on their arrows (property rights clearly defined)
    - ✓ Men with inferior buffalo horses could only kill slower running bulls.
    - ✓ Good buffalo horse worth several regular horses (buffalo horses were scarce)
    - ✓ Poor families unable to borrow buffalo horses or without any able body hunters relied upon charity of the wealthy for their meat. Poverty existed amongst Native Americans prior to reservations. Poor given meat from lean, not fat cows.
    - ✓ Could lease buffalo horses
  - Rabbits hunted under leadership of a rabbit chief
    - ✓ Catch of these drives usually divided equally amongst hunt participants, but sometimes larger share was given to the hunt's leader or net owners.

### IV. Prices

- A. Abundance resulted in certain buffalo parts having no value (parts were wasted).
- Number of bison slaughtered in a drive was uncontrollable.
  - Light butchering was common where only the tongue and choicest meat cuts were taken.
    - ✓ After a successful hunt, approximately 50% of harvestable meat was taken
    - ✓ Rational economic behavior
  - Often, so much meat was left after a successful drive that stench made it impossible to drive anymore buffalo over the jump for months.
- B. Notice green strip below the Buffalo Jump
- From nitrogen imparted by buffalo bones / blood
    - ✓ 30 to 1400 buffalo killed in a stampede
  - Tons of bones remain buried under base
  - Buffalo jump in Canada has bones over 100 feet deep
- C. Prices changed Indian behavior

- Even prehistoric humans adapted to environmental changes by substituting new types of capital, labor and knowledge for old types and by fabricating new products when prices changes.
- Contact with Europeans through fur trading dramatically changed the value of fur bearing animals and the incentive to establish rules preventing animal populations from being exploited.

## V. Economies of Scale

### A. Costs and benefits of group hunting

- Individual (family) hunting only successful in crusty winter snow or at watering holes, river crossings or salt licks.
- When buffalo were near a jump, benefits of coordination exceeded costs because the pedestrians were rewarded with economies of scale.
  - ✓ Herd was slowly led into drive lines made of stones, buffalo chips or other available material.
  - ✓ Indians stood next to the drive line edges beating their robes to prevent buffalo from testing the drive line's durability.
  - ✓ Many people were needed along the lines to prevent buffalo escape.

### B. Economies vs. Diseconomies of Scale

- Economies of scale occur when average productions costs fall as output increases.
- Diseconomies of scale occur when average productions costs rise as output increases.
- Optimal band size for pedestrian drives was between 100 and 150 people.
  - ✓ Economies of scale occurred with up to 150 people.
  - ✓ Diseconomies of scale occurred with more than 150 people.

### C. Introduction of new technology effects economies of scale

- As horses increased the territorial range of Indian groups, scale economies in warfare increased.

### D. Economies of scale were present in many Native American activities

- Large private garden plots were common in eastern U.S. tribes.
  - ✓ Economies of scale in planting and cultivation, so these activities were done communally under direction of a chief.

## VI. Institutions

- Institutions affect the performance of the economy through their effect on costs of exchange and production.
  - ✓ Institutions can be judged on extent to which they reduce transaction costs.
- Term *nation* applied to Indian tribes implies formal governing structures, but generally Indian tribes were made of independent groups with little centralized control except for times when bands gathered for events such as ceremonies and hunts.

## **VII. Indians Adapted Their Institutions With the Arrival of Europeans**

### A. Arrival of horse

- Illustrated ability of Indians to adapt
- Omaha Indians in present day Nebraska cultivated private garden plots along streams until arrival of horses, at which point they became more nomadic (as did most plains tribes).

### B. Economics explains effects of the horse

- Optimal group size declined
- Returns to being chief declined (except in wartime)
- Outward shift in production possibilities frontier caused Native Americans to be better off.  
-Produced more output and had lower transaction costs.

## **VIII. Free Rider Problem (Shirking)**

### A. Native Americans prevented shirking

- Imperative individuals act in unison for group hunting and war activities.
  - ✓ Chiefs in tribal camps banned individual hunting (had guards who prevented hunting alone before the group did).
  - ✓ When at war, Omaha police kept order while tribe was in movement. Restraining the overly zealous, urging on the stragglers and ensuring no one left group without proper authority.
- Rules for group activities reduced incentive to shirk
  - ✓ Provided return on investment in both physical and human capital

### B. Using norms to overcome shirking problems

- ✓ Free rider problem must be overcome for collective action to be effective.
- ✓ Norms such as “though shall not steel” (commandment) reduce enforcement costs.
- ✓ Norms played important role amongst Native Americans.

### C. If shirking potential was too high, group action wasn't taken

- The gains from scale economies resulting from group action have to be traded off against the potential for shirking by individual group members.
- Group action not taken when cost of preventing shirking was prohibitively high.

## **IX. Property Rights**

### A. Is not being able to own individual wildlife and fish a problem?

- Indian's dependence on hunting and fishing made management of these resources imperative.
  - ✓ Clearly specified property rights helped encourage scarce resource conservation.
- Private ownership of fish or wildlife themselves was impossible because of their migratory nature, so Indians controlled access to hunting and fishing areas instead.
- Indians of the western United States, where private land ownership was less common, had communal use rights for hunting, fishing, gathering and agriculture.
- Pacific Northwest Indians had well-defined fishing rights.

- ✓ Used fish weirs and other technology to catch salmon swimming upstream to spawn
- ✓ Realized importance of letting some fish swim by

#### B. Importance of personal property

- Best private ownership example was the horse, which revolutionized Plains Indian transportation.
  - ✓ Horses became one of the Indian's most important sources of wealth.
  - ✓ In Canada in the early 1800s, a buffalo horse could not be purchased with ten guns, a price far greater than any other tribal possession.
- Personal property was nearly always privately owned and traded.
  - ✓ Clothes, weapons, utensils and housing were often owned by women
  - ✓ Plains Indians owned their own tepees. Most tepees were made of 8 to 20 buffalo hides.
- Property rights were commonly defined when resources were scarce
  - ✓ Stone (commonly obsidian) from which arrowheads were chipped was obtained through long distance trade and was considered personal property.

#### C. Property rights promote wealth accumulation

- American Indians were able to accumulate wealth because they had institutions clearly defining rights to land, fishing and hunting territories, and personal property.
- Indians were typically not pure communists. Relied on private ownership for incentives.
  - ✓ Reports of some individual Blackfeet men in the mid 1800s having 2 to 3 lodges, 5 or 6 wives, 20 to 30 children and 50 to 100 horses and trading goods valued at \$2,000 per year, which is \$500,000 when converted to today's dollars.

#### D. Property right enforcement

- The customary rights that governed hunting, trapping and fishing were often expressed in terms of religion and spirituality rather than science as done today.
  - ✓ Rules conserved resource base
- Modern notion of private property as well-defined ownership enforced by governmental institutions and traded in the marketplace had little application in Native American societies where individual rights were defended by closely knit social groups and where formal markets were lacking.

### **X. Risk**

- Communal arrangements for sharing scarce food supplies reduced individual risk.

### **XI. Difference between getting and not getting incentives right**

#### A. Consequences of Not Getting Incentives Right

- Many reservations today have experienced decline in quality and quantity of wildlife.
  - ✓ Wildlife are almost extinct on most western reservations.

- ✓ There are few big game animals, such as deer and elk, on the Crow Reservation in Montana despite fact the reservation has excellent habitat. Non members can't hunt, but tribal members can hunt year round without limit. Similar situation on the Wind River Reservation in Wyoming (Arapahoe / Shoshone Indians).

B. Benefits of getting incentives right, Fort Apache Reservation

- Reservation covers 1.6 million acres in Arizona
- Tribe manages their population of 12,000 wild free roaming elk.
- Since 1980, hunters on guided hunts have averaged a 90 – 95% success rate and from 1977 to 1995 took 90 bull elk recorded in the Boone and Crocket or Safari record books, the same number of record elk that have been taken from the entire state of Montana since recording keeping began in 1932.
- In 1995, 66 hunters paid \$12,000 each for a 7 day trophy hunt for total reservation revenue of \$850,000 (5 year waiting list to come).

### Discussion Questions

1. What do economists mean by “the invisible hand” and how does this apply to buffalo hunting?
2. How do incentives ensure that people acquire skills and equipment necessary to complete a buffalo hunt?
3. How does scarcity determine prices?
4. Give an example of a current tragedy of the commons that is occurring, why, and how it can be avoided.

### Works Cited

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