Re-structuring the US Postal Delivery Services Sector: Lessons from Other Network Industries

Frank A. Wolak
Department of Economics
Stanford University
Stanford, CA 94305-6072
wolak@zia.stanford.edu
http://www.stanford.edu/~wolak

Motivation

- Virtually all network industries in the US have re-structured or are in the process of doing so
  - Telecoms, Electricity, Natural Gas
- United States Postal Service (USPS) remains state-owned monopoly provider of "letter delivery services"
- Faces limited competition from
  - Federal Express--Express mail
  - United Parcel Service--Package delivery
  - Newspapers--Saturation advertising

Purpose of Presentation

- Use experience of other network industries to address three questions
- How has the USPS avoided re-structuring?
- What are the benefits versus costs of re-structuring the postal delivery services sector?
- If benefits of re-structuring exceed costs, how should it take place?

Political Economy of Re-structuring

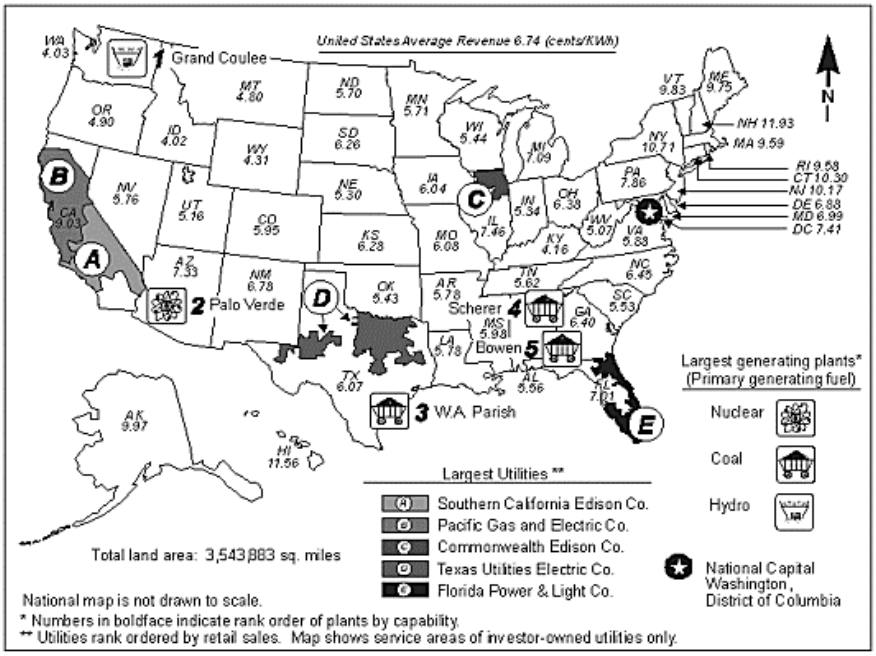
- Three factors which stimulate re-structuring
  - Technological change occurs which enables re-structuring to achieve significant benefits
  - Regulatory process fails to allow these benefits to be realized
  - Re-structuring allows these benefits to flow to politically powerful constituency
- Example from electricity industry
  - Arab oil embargo and accompanying energy price inflation necessitated real electricity price increases
  - Large demand growth drop from historical 7% per year
  - This was followed by large excess capacity in industry

Political Economy of Re-structuring

- Electricity industry continued
  - This led to state-level regulatory disallowances of many new investments by incumbent utilities
    - State politics makes it difficult for regulators to be wrong *ex post*
  - Very little new investment by incumbent utilities in 1980s and 1990s
  - Federal response--Allow merchant power sector to develop to meet load growth
  - Created politically powerful constituency that could benefit from re-structuring--merchant power producers
  - Technological changes in electricity transmission allowed economic delivery over longer distances

Political Economy of Re-structuring

- Electricity industry continued
  - Large industrial and commercial consumers could benefit from cheap power from merchant sector
  - Politically powerful coalition of merchant sector and large customers led way to re-structuring
  - Portions of US with competitive wholesale markets are states with highest delivered retail prices in 1998
  - Little evidence in US that residential and small business customers have received any benefits from re-structuring process
    - Compared to what could have been achieved under former regulated regime



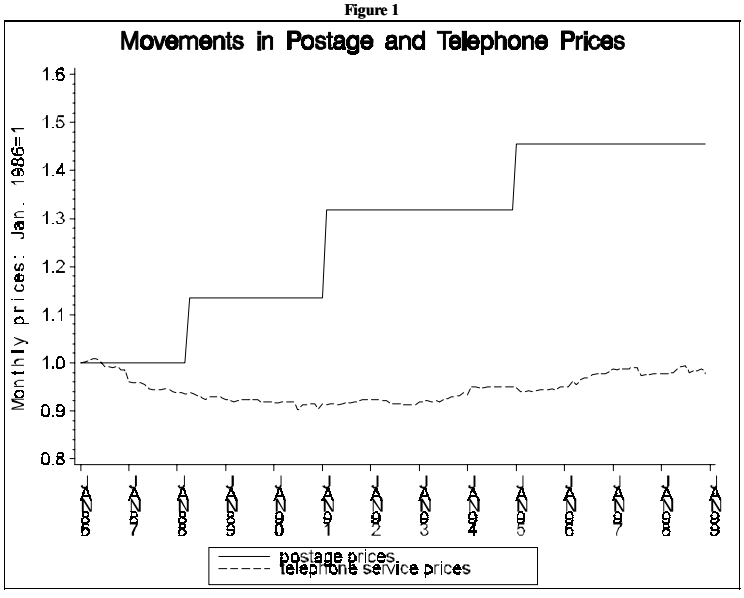
Political Economy of Postal Re-structuring

- Technological change has occurred in message delivery services
  - Internet--E-mail, On-line bill paying
  - Long-distance telephony--FAX
- Erosion of demand growth in core monopoly services provided by USPS
  - Reduced rate of growth in first-class mail
    - From 1980 to 1989--annual growth of 3.9%
      - Single piece first-class mail grew at 1.0% per year
    - From 1990 to 1999--annual growth of 1.7%
      - Single piece first-class mail grew at -0.4% per year

Table 1: Annual Estimated US Population Percentages of Personal Computer Ownership for Interview Survey Sample

Year	Number of Households	Percent Owning Personal Computer
1988	5,184	13.4
1989	5,096	14.5
1990	5,095	15.9
1991	5,157	17.7
1992	5,148	19.8
1993	5,256	23.0
1994	5,054	24.7
1995	4,971	27.7
1996	4,917	33.2
1997	5,580	37.0
1998	7,309	42.5

Figure 1



Political Economy of Postal Re-structuring

- Household-level demand for postal delivery services has eroded rapidly
  - From 1986 to 1998 fraction of USPS revenues obtained from household sector fell from
    - Approximately 20% to 10% [Wolak (2001)]
- Standard Mail (A) and (B) experienced fastest growth rates of all mail streams
  - Standard Mail (A)--Advertising circulars, catalogs, direct mail, printed matter
  - Standard Mail (B)--Bound printed matter, library mail, parcel post

Table 4a: Postal Revenue and Estimated Annual Household Expenditures

Year	Estimated Aggregate Postage Expn.	Estimated Annual Mean Household Postage Expn.	Estimated Aggregate Telephone Expn.	Estimated Annual Mean Household Telephone Expn.	Total USPS Annual Postal Revenue	Revenue Share of House-holds
	($, billion)	($)	($, billion)	($)	($, billion)	(%)
1986	5.07	58.19	36.70	421.67	29.12	17.4%
1987	5.83	66.89	41.32	474.22	30.50	19.1%
1988	5.85	65.87	42.64	480.38	33.92	17.2%
1989	6.69	74.26	45.63	506.51	36.67	18.2%
1990	6.38	69.88	50.11	549.16	37.89	16.8%
1991	5.80	62.71	52.16	563.45	41.92	13.8%
1992	6.06	64.20	59.79	633.04	44.72	13.6%
1993	5.90	62.75	60.82	647.07	45.91	12.9%
1994	5.11	54.96	64.94	698.72	47.74	10.7%
1995	5.72	67.27	61.99	728.67	52.49	10.9%
1996	6.24	70.11	68.03	764.63	54.54	11.4%
1997	6.05	67.93	64.54	724.69	56.27	10.8%
1998	6.35	64.41	68.99	699.60	58.04	10.9%

Political Economy of Postal Re-structuring

- These services face stiff competition
  - Standard Mail (A) from Private delivery services and newspapers, primarily for advertising circulars
  - Standard Mail (B) from United Parcel Service, primarily for parcel post and bound printed matter
- The services primarily purchased by large politically powerful businesses
  - Consumers primarily use first-class mail
  - Businesses use pre-sort first-class, which has significant bulk discounts

Political Economy of Postal Re-structuring

- Postal Reorganization Act of 1970 requires Postal Rate Commission (PRC) to set rates
  - To recover all costs attributable to each class of service plus a share of institutional costs
- Mark-up of average attributable costs for periodicals, Standard Mail (A) and (B) are small relative to mark-up for first-class
  - Direct mailers, magazine publishers, and parcel delivery companies are very effective participants in PRC proceedings

Political Economy of Postal Re-structuring

- In 2000, $35.5 billion of $64.5 billion in USPS revenues came from first-class delivery
  - Average revenue per piece ~35 cents
- Next highest, was Standard Mail A at $15.2 billion
  - Average revenue per piece ~16 cents
- Periodicals revenue was $2.17 billion
  - Average revenue per piece ~21 cents

Political Economy of Postal Re-structuring

- Powerful political constituency already being served under current regime
  - Hard to see how average prices of Standard A and periodical delivery can fall under current vertically integrated USPS regime
- Technical change does not make more flexible use of postal network more attractive to this powerful constituency
  - Different from electricity and natural gas transmission networks, and telecoms network
  - Telecoms--DSL, Cellular, Long-distance, Cable TV

Political Economy of Postal Re-structuring

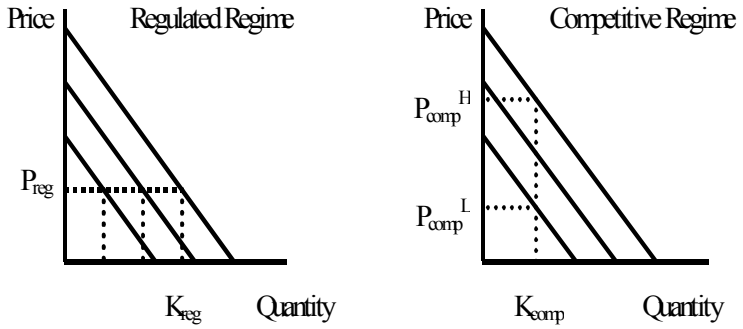
- Technology leading to following scenario
  - Demand for USPS products becomes more elastic
  - Standard A, Standard B and Periodical rate increases result in revenue losses due to competition
  - First-class price increases cannot cover these losses or other cost increases because of revenue losses due to diversion to substitute services
- Those who can, switch to providers of substitute services--Internet, telephony
  - Highest cost customers remain with USPS

Benefits of Re-structuring

- Example from electricity industry
- Four major sources of benefits from re-structuring
- Strong incentives for efficient operation
  - Short-term operation at least cost
  - Long-term investment decisions based on market signals
- Consumers make greater effort to use existing capacity more efficiently
  - Get by with less capacity to serve same number of consumers
  - Use price signals to cause demand to shift to low-priced periods
  - Holding excess capacity is costly, because capital costs of unused capacity must be paid for regardless of if plants operate

- Competitive market efficiently allocates resources using price mechanism
- Regulatory process cannot respond to changing market conditions fast enough
- Regulatory paradigm sets price and builds capacity necessary to serve maximum realization of demand at that price
- Competitive paradigm sets price to allocate fixed level of demand in short-run and produce efficient level of investment in long run

Optimal Capacity Choice Under Regulation versus Competition



$K_{reg} >> K_{comp}$

Example--US Airline Industry

- Load Factors = (Seats Filled)/(Seats Total),
  - In regulated regime highest load factors approximately 55% in 1976
  - Currently Load Factors are close to 75%
- This increased capacity utilization rate allows real average fare per passenger-mile to be significantly less than under regulated regime
- Regime works because of large number of sophisticated price-responsive consumers.

Benefits of Re-structuring

- Risk of reliably delivering electricity allocated to those entities able to bear it at least cost
  - In regulated regime, risk assigned by fiat to vertically-integrated utility
  - In competitive regime, risk can be traded among market participants--upside of energy trading
- Greater product diversity than under regulation
  - Profitable niche markets will be served
- Benefits from re-structuring in these four areas in natural gas and telecommunications industries

Costs of Re-structuring

- Costs of re-structuring
  - Firms in a competitive market have little incentive to pass on cost reductions to consumers in the form of lower prices
  - Firms may set prices far in excess of marginal cost if market is not competitive
  - Existing firms may takes actions to prevent entry by new firms
  - Competitive markets eliminate cross-subsidies in prices across services and/or consumers
    - Uniform pricing impossible to maintain

Benefits of Postal Re-structuring

- Significant opportunities for cost reductions
  - In testimony to Postal Rate Commission USPS witnesses state that USPS may not produce at least cost
  - Lenard (1994) studies costs of competing private carriers for Standard Mail (A) found
    - Private carrier average price is approximately 73% of USPS average price for comparable delivery service
    - Major source of cost increase is significantly higher USPS wages
    - Perloff and Watcher (1984,1991) found approximately 20% wage premium for USPS workers version comparable workers outside USPS

Benefits of Postal Re-structuring

- USPS has inefficiently large number of postal outlets
  - Many in each US Congressional district
  - General Accounting Office study found significant saving from closing over 7,000 post offices with alternative facilities
  - Compare numbers and characteristics of UPS and Fed Ex outlets to USPS outlets
- Labor contracting practices may increase costs
  - Restrictions on part-time workers

Benefits of Postal Re-structuring

- Timeliness and predictability of delivery may be less important because of availability of many substitutes
  - Potential for different delivery frequencies should have little associated consumer harm
- Postal delivery network far more forgiving of delivery lags and network failures than natural gas, electricity and telecom networks
  - Network can be shutdown for short periods without large consumer harm

Costs of Postal Re-structuring

- Market power problem in postal network is much less extreme than in
  - Electricity, Natural Gas or Telecoms
- Essential monopoly service is local delivery network
- Should be easier to determine discrimination by incumbent against competitive carriers than in other network industries
  - Compare point-to-point delivery times for competitive and incumbent deliveries

Costs of Postal Re-structuring

- Difficult to see significant ways to add-value on top of local network services
  - Compare to DSL other high-speed data services in local telecommunications network
- Two efficiency costs of regulated monopoly
  - Static inefficiency--Deviating from least-cost production given current technology
  - Dynamic inefficiency--Limited incentives to innovate to reduce costs
    - Rates in future periods reduced as a result
- Static and dynamic least-cost supply unknown

Costs of Postal Re-structuring

- Limited potential for significant technical change in local delivery function
  - Compare to local distribution network in telecoms and electricity
  - Cost of dynamic inefficiencies from regulating local access is significantly less than other network industries
- Focus local access regulatory process on learning least cost production with low rate of technical change
  - Price cap or other incentive regulation plan

Costs of Postal Re-structuring

- May be difficult to impose sufficient safeguards on competitive delivery network
  - Protection against transport of dangerous substances
  - Protection against mail third-party interference with mail delivery
  - Protection against government interference with mail delivery
- Other legal costs of re-structuring
  - Postal union reform
  - Private express and mailbox statute reform

Implementing Re-structuring

- Major cost savings seems to be productive efficiency gains
  - Available evidence suggests the resulting price reductions and cost savings may be substantial
- May even be feasible to allow competition in local delivery as well
  - Cohen, Ferguson, Waller, Xenakis (1999) argue that cream-skimming in local residential delivery would be unprofitable given geographic distribution of unprofitable routes
    - Little geographic concentration of profitable routes

Model for Re-structuring

- Example from telecommunications sector
  - Divest local network (essential facility) from incumbent vertically integrated monopolist
  - Regulate prices of basic network elements of local network
  - All competitors including unregulated affiliate have equal access to local network to offer competitive valued-added products
    - Long-distance providers purchase originating and terminating access to provide their retail service
    - DSL providers purchase necessary basic network elements to offer their retail service

Model for Re-structuring

- Example from electricity industry
  - Transmission and distribution network operated on open-access basis by independent entity
    - Independent System Operator
  - All entities pay regulated access prices
    - Generators sell into transmission network
    - Load-serving entities purchase from transmission network
    - Retailers pay for access to distribution network to sell electricity to final customers
  - US markets allows incumbent monopolists to retain ownership of network but not control

Model for Re-structuring

- Example from Natural Industry
  - Bulk transmission network operated on long-term "open-access" basis
    - Cannot withhold transmission capacity
  - Many different entities own portions of transmission network
    - Contractual sales of pipeline capacity
  - No retail competition in natural gas sales to final customers
  - Regulated monopoly supply of natural gas for residential and small business customers

Model for Re-structuring

- Apply vertical separation model to USPS
  - Separate local network from other services of vertically integrated firm
  - Divide US into separate local access markets
    - Similar to Local Access and Transport Areas (LATAs) in AT&T divestiture process
    - May make sense to do this to state-level
    - Create 50 local mail delivery areas (LMDAs)
  - Set regulated price for access by all value-added retailers to LMDAs
  - Regulated price of access could be set at state or federal level--state regulation preferred

Model for Re-structuring

- Apply vertical separation model to USPS
  - Can privatize each local access market provider separately or all of them as single firm
  - During initial stages of re-structuring keep local access a franchise monopoly
    - Legal prohibition on competitive entrants in local access services
  - As market matures, can allow competitive entry
    - Unregulated “bypass” of local network will also occur
    - Similar to telecommunications case
  - Uniform pricing cannot be maintained

Model for Re-structuring

- The model will isolate regulated monopoly services to smallest entity possible
  - Provide this service to all competitors at regulated price
  - Focus regulatory process on improving static efficiency of supply
  - Use market to uncover least-cost supply of all mail delivery services
  - Different prices for different locations
  - Competition determines which locations

Model for Re-structuring

- Maximize the opportunities for cost efficiencies and price reductions to be realized through competitive entry in provision of value-added retail services
  - Bundled pricing of competitive services possible
- Solves problem of long-term financial viability of USPS
  - Unregulated USPS can enter any and all competitive markets
  - Transition to competition in local access

Getting There

- Good news--USPS faces crisis situation
  - Crisis stimulates action in government
- Bad news--USPS extremely strong politically
  - Postal labor unions--current residual claimant
  - Public perception of USPS better than other utilities
    - Everyone like their postal delivery person
    - Many post offices in every congressional district
  - Public currently unaware of extent of problem and need for action