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Viability and Efficiency of Network Competition

Bruce Greenwald

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Columbia Institute for Tele-Information
Graduate School of Business
809 Uris Hall
Columbia University
New York, New York 10027
(212) 854-4222

VIABILITY AND EFFICIENCY OF
NETWORK COMPETITION

B. GREENWALD
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BASIC WELFARE THEOREM

- (1) PRICE TAKING BEHAVIOR (ORGANIZED ATOMISTIC MARKETS)
- (2) NO EXTERNALITIES (ALL INTERACTIONS ARE MARKET MEDIATED)
- (3) COMPLETE MARKETS
- (4) PERFECT INFORMATION
- (5) "EXISTENCE OF COMP. EQUILIBRIUM" (NO NATURAL MONOPOLIES)
- (6) NO TAXES

• ON ALL ACCOUNTS BASIC WELFARE THEOREM FAILS TO APPLY TO NETWORK OF NETWORKS

PRICE TAKING BEHAVIOR (ORGANIZED ATOMISTIC MARKETS)

- NETWORK CONSTITUTED BY "NODES" AND "LINK"
- MARKET MUST EXIST OF EACH NODE AND LINK - N NODES, N^N LINK, TIMES K ("LARGE NUMBER") OF SUPPLIERS
- PRICES SET CONTINUOUSLY BY TATONNEMENT OR SIMILAR PROCESS
- ENTRY, EXIT PLUS COMPETITION FOR CUSTOMERS IS NOT ENOUGH FOR WELFARE THEOREM (N.B. CASE OF MONOPOLISTIC COMPETITION)

EXTERNALITIES ARE PERVASIVE IN REALISTIC CASE

- BASIC NETWORK MEMBERSHIP EXTERNALITY
- CONGESTION EXTERNALITIES ^{IN} TRAFFIC FLOW
- DEMAND DIVERSION EXTERNALITIES (SUPPLY SIDE OF CONGESTION EXTERNALITIES) - PERVERSE ROUTING EFFECTS (FRANKFURT AUTOBAHN)
- ECONOMICS OF DECENTRALIZED NETWORK OPERATIONS ARE NON-EXISTENT IN THEORY AND PRACTICE.

INCOMPLETE MARKETS

- ESTABLISHING PRICES HIGHLY COSTLY - $TN(N^{N-1} + 1)$ MARKETS AT FIXED COST F IN EACH OF T -PERIODS WOULD PROBABLY CONSUME ENTIRE WORLD GNP.
- EVEN PRICE SETTING BEHAVIOR IN EACH MARKET PLUS RAPID ADJUSTMENT IS INFEASIBLE

INCOMPLETE MARKETS (CONT.)

- INCOMPLETE MARKETS IMPLY SECOND-BEST CONSIDERATIONS AND DIFFICULT ADJUSTMENTS (INSTABILITY) - NO SUCH DEVELOPED THEORY EXISTS.

IMPERFECT INFORMATION

- QUALITY INFORMATION (BLOCKAGES, TRANSMISSION ERRORS) ON EACH LINK REQUIRED
 - INCENTIVES FOR SUB-OPTIMAL QUALITY ON EACH LINK
- PRICE INFORMATION (AVAILABLE FOR EACH LINK IF MULTIPLE LINK CHAIN)
 - INCENTIVES FOR OVERPRICING (E.G. PUBLIC PHONES)

NATURAL MONOPOLIES

- ■ SINGLE LINKS IN FEEDER PART (ENHANCED BY TECHNOLOGY)
- SINGLE LOOPS (ENHANCED BY TECHNOLOGY)
- NETWORK MANAGEMENT SYSTEMS
- NETWORK ECONOMIES - OF - SCALE
- ECONOMIES-OF-SCALE RENDER "COMPETITIVE" SOLUTION NON-VIABLE, IMPOSED "COMPETITIVE" SOLUTION INEFFICIENT.

TAX DISTORTIONS

- EXISTING "TAXES" IMPLY THAT "COMPETITIVE" ACTIVITY (E.G. SMUGGLING) MAY BE SUBOPTIMAL
- "TAXES" ARE DEFINED WITH RESPECT TO MARGINAL COST
- REGULATORY "TAXES" ARE BOTH NECESSARY AND PERVASIVE
- NOBODY PROPOSES COMPLETE DEREGULATION (E.G. ■ OF LOCAL SERVICE PRICING, SERVICE).

IN THE ABSENCE OF WELFARE THEOREM FOR COMPETITION, "SECOND-BEST" APPLIES

- NO THEORETICAL MODELS IMPLY "COMPETITION" IS BEST.
- ■ EMPIRICAL EVIDENCE IS MIXED TO NON-EXISTENT IN FAVOR OF COMPETITION (AIRLINES, TRUCKING, CABLE, LONG DISTANCE)
- NO ^{ED}DETAILED ENGAGEMENT WITH THE ISSUES OF PARTIAL DEREGULATION

RANGE OF ISSUES THAT MUST BE ADDRESSED

- NETWORK COORDINATION AND MANAGEMENT
- CONTROL OF SPILLOVERS & CONGESTION IN ALLOWING ENTRY (E.G. AIRLINES)
- PRICING OF PARTIAL LINKS
- INFORMATION MANAGEMENT & QUALITY STANDARDS
- PRIVATIZATION VS. DEREGULATION (INTERNAL VS. MARKET ECONOMIES)
- ALLOCATIVE VS. PRODUCTIVE EFFICIENCY

PRICING OF PARTIAL LINKS

- BILATERAL MONOPOLY ISSUES (MULTILATERAL MONOPOLY ISSUES)
- TARIFF STRUCTURE COORDINATION (TWO-PART TARIFFS, ETC)
- COSTS OF ADMINISTRATION, MONITORING
- RESPONSIVENESS TO DEMAND
- EX-POST VERSUS EX-ANTE PRICES

• THERE ARE NO MODELS OF OPTIMAL NETWORK PRICING THAT EVEN VAGUELY APPLY TO REAL WORLD.

INFORMATION MANAGEMENT & QUALITY STANDARDS

- DISRUPTION COSTS
- FLY-BY-NIGHT OPERATORS
- UNIFORM PRICING EXPECTATIONS WITH LOCATIONAL ADVANTAGES

• EVEN IN NON-NETWORK CONTEXTS THERE IS NEITHER THEORETICAL NOR EMPIRICAL THAT IS HIGHLY DEVELOPMENT IN THESE AREAS.

PRIVATIZATION VS. DEREGULATION ; ALLOCATIVE VS. PRODUCTIVE EFFICIENCY

- INTERNAL FIRM EFFICIENCY VS. "MARKET" ADVANTAGES (CASE FOR MANAGED COMPETITION - E.G. JAPAN)
- HARBERGER TRIANGLES VS. FULLY APPLICABLE COST INEFFICIENCIES.

CONCLUSIONS

- IN NETWORK AREA, "COMPETITION" IS NO MORE THAN A SLOGAN TO MASK LAZINESS, STUPIDITY AND SELF-INTEREST
- ~~NOTHING~~ ONLY LIMITED WORK (E.G. SHARKEY) IS BEING DONE ON THE ~~THE~~ APPLICABLE THEORY OF NETWORK COMPETITION
- NO ONE HAS ANY IDEA OF PROPER REGULATORY INTERVENTION, BUT SIMPLE THEORETICAL AND EMPIRICAL EXPERIENCE SUGGEST THAT "WHOLESALE" MOVEMENTS TO "COMPETITION" ARE UNWARRANTED AND DYSFUNCTIONAL.
- ~~BECAUSE~~ NETWORK COMPETITION SHOULD BE APPROACHED CAUTIOUSLY AND INCREMENTALLY.