PSAP & Hearables Overview: Market Data, Distribution, Barriers

Institute of Medicine

Committee on Accessible and Affordable Hearing Health Care for Adults

June 30, 2015

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HEARING HEALTH & TECHNOLOGY MATTERS

My Perspectives

STANFORD
HOSPITAL & CLINICS
Stanford University Medical Center

Clinical research and teaching (6 years)

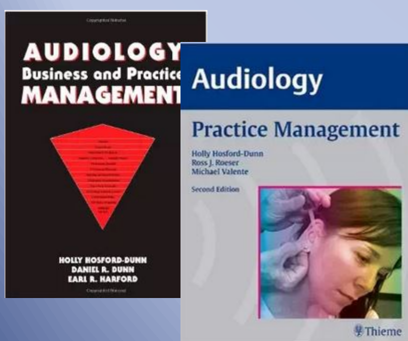
hearing & amplification
consumer satisfaction

Tucson Audiologists/TAI Inc.
Celebrating life through better hearing

Private Practice (29 years)

Practice management

Consumer satisfaction



HEARING
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Author/Editor (20 years)

ARIZONA
Eller
Department of Economics

Economic Principles

Market behavior
Consumer preferences

PSAP: Substitute Good (?)

Personal Sound Amplification Product

- Not a new good (Crystal Ear, 1990s)
- Unregulated by FDA
- Defined by FDA by absence of intent:
  "***not for mitigating hearing loss***"
- Technological advances
  - High quality PSAPs
  - Sophisticated signal processing
- Undifferentiated by appearance, features
- **Differentiated by price, distribution channels**

PSAP Market Estimates

Study/N/#HD/# HA/# PSAP Population sampled	Estimated Hearing Difficulty (HD) Self-report	Estimated HA Users	% Directs &/or PSAPs	Estimated Direct & PSAP Market
MarkeTrak IX (MT9)[1] N = 17K (47.6K individual) n=13,018/3079/980/32 Population: 313.9M US, 2014	33.3M 10.6%	10.06M[2] (30.2%)	3.36% of adopters[3]	PSAPs: 1.43M (4.3%) Adopters: 338K[4] Non-adopters: 1.09M[5]
Kochkin[6] MarkeTrak VIII I. N=46,843/14,623/3,789/NA II. PSAP study in HD Non-adopters (n=5500/208 PSAPs) Population: 303.1M US, 2008	34.25M[7] 11.3%	8.81M (24.6%)	3.28% adopters; 4.79% non-adopters	PSAPs: 1.5M[8] (4.4%) Adopters: 280K Non-adopters: 1.24M

Fig 1. US Market estimates, PSAPs + Direct Purchases

Take home: Low penetration (<5%), static market?

Hearables: Not substitutes

Ear level consumer electronics device

- New "smart" product in 2014
- Not regulated or currently related to the FDA
- Consumer Electronics industry defines as platform for bionics innovations:

  "Any device, or combination of innovative devices and software that helps someone hear better."

- **Differentiated by looks, functionality, price, distribution channels, target market, development & fulfillment**

Hearables Market Estimates

Study/N/#HD/# HA/# devices Population sampled	Estimated Hearing Difficulty (HD) Self-report	Estimated Hearing Aid Users	Estimated "Other" Market Penetration	Estimated "Other" Users
CEA 2014 PSAP Survey[9] *("other hearing device")* N=3424/1551/111/41 Population: 214M US adults online (87% of total US adult population)	98M (46%)	4.21M[10] (7.2%)	2.6%	2.59M[11]
The Market for Smart Wearables[12] *("hearables")*	NA	NA	N/A	~2.68M units, 2014 ~6.69M units, 2018 [13]

Fig 2. Consumer electronics estimates of US market for Hearables/PSAPs.

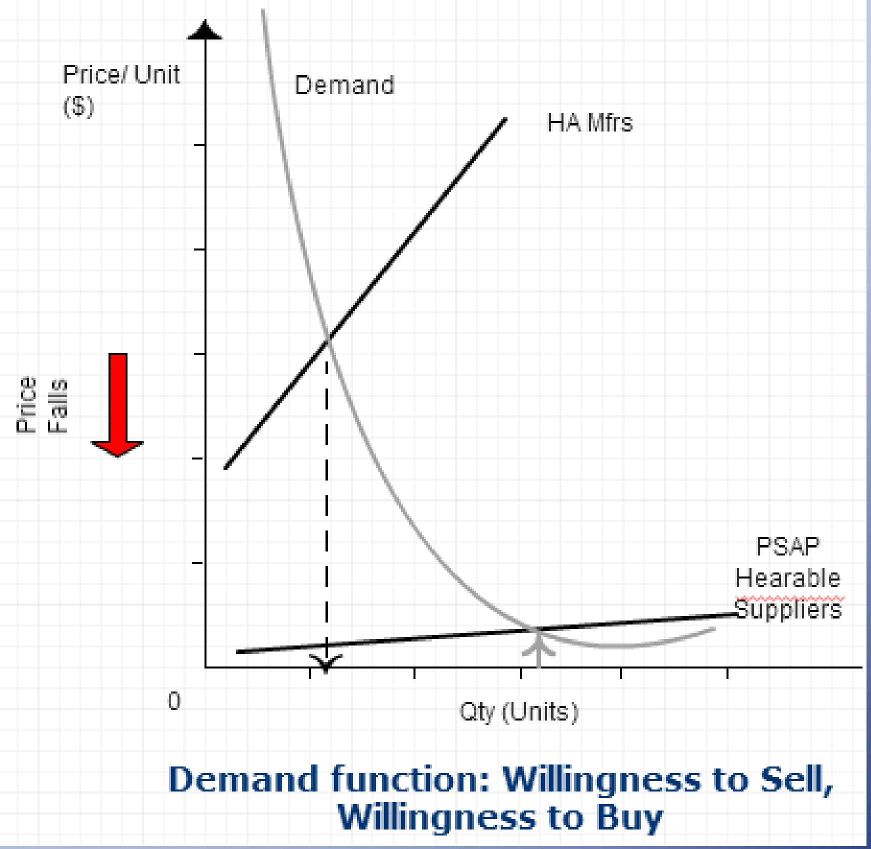
Take home: low penetration, small sample

Hearing Device Accessibility and Affordability in the US

Report Card

	Hearing Aids (Van Tasell, 2015)	PSAPs Hearables
Effectiveness	B	?
Accessibility	D	B
Affordability	F	A

Price and Accessibility aren't Barriers



Convergent Forces Drive Market Toward Equilibrium

- Market is really one of homogeneous goods
- Consumers engaged in costly and constant price search activity
- Trade offs
  - More information -> lower price and variance-> increased consumer welfare
  - Lower price -> lower profit margins -> lower innovation intensity

Influence Expected Benefit

Technological Innovation and Integration

- User Control: Self efficacy (testing and self-fitting)

- Unique Uses: experiential, enhancing
  - Wireless, multi-use connectivity
  - Communication centers :“personal aides/sensing devices”
  - Streaming content
  - Alerts (calendar, medical)

- Wearability: healthy, comfortable hands-free, image-enhancing

- Convenience/Compatibility:
  - Improved power supply, charging
  - Standardized pairings, interfaces, downloads, adjustment, data storage

Influence Expected Benefit

Explain, Enlighten, Encourage

- Consumer Education
  - "non-adopters should continue to be educated on hearing loss, prevention, and treatment." Kochkin MTVIII
  - Interactive nature of hearing loss
- Newly Acquired Preferences for competitive edge
  - Tech up hearing, communication, intelligence, coolness
  - Eliminate stigma, reduce anxiety
- Transitioning Devices
  - PSAPs/Hearables as "incubators"

Influence Expected Benefit

Data-Directed-Development

- Exhaustive, controlled data gathering
  - Epidemiological studies
  - Clearinghouse for real-time pseudonymized data
    - Settings
    - Patterns of use
      - Listening environments
      - Preferred settings
      - Applications
      - Wearing schedules
    - In situ satisfaction measures
  - Proof of effectiveness
    "Understand, influence and set standards for hearing and ear-level communications" *(Brent Edwards, video)*

It depends ….

- Transition regulations
  - Changing market
  - Converging technologies
  - Redefine by inclusive features rather than exclusive intentions
- “Advisable not to intervene in the economic process”

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