


Value Contribution of FCC Licensed Spectrum

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Intangibles – Indirect Contributions to Income

- The *Elk Hills* decision notes, “... under an income stream approach, not all intangible rights have a quantifiable fair market value that must be deducted.”
- Some “intangible rights . . . merely allow for the taxable property to generate income when put to its beneficial or productive use. Thus, their contribution to the income stream is indirect...”
- The “income stream” being referred to in *Elk Hills* is the forecasted stream  that belongs to the entire business enterprise as a going concern.

Spectrum as an “Indirect” Intangible

- For wireless carriers, licensed spectrum is an intangible asset, similar to customer relationships, workforce, technology, trademarks
- Unlike these other intangibles:
 - The contribution of spectrum to a wireless carrier’s income stream is indirect (unless they are wholesaling)
 - » Rephrasing *Elk Hills*, spectrum allows for taxable radio frequency equipment to generate income when put to its beneficial or productive use
 - Yet, it is the most modular intangible asset a wireless carrier owns!
 - » Liquid market; spectrum sales happen every day
 - » FCC H-block auction is under way

Ways to Value Spectrum

- So yes, deducting spectrum “profit” from a business enterprise’s cash flow  can be difficult...
- ...but that’s not the only way to eliminate its value contribution from an enterprise value
- Understanding spectrum’s modularity can allow you to measure value of a spectrum portfolio independent of the business’ forecasted cash flows or its enterprise value.
- Approaches to value can vary in what business-specific assumptions are used:
 - Most Cost and Income Approaches to valuing spectrum are “carrier-dependent,” relying on spectrum in use and operating characteristics of carrier
 - In contrast, Market Approach can be “carrier-**in**dependent”

Spectrum – Cost Approach

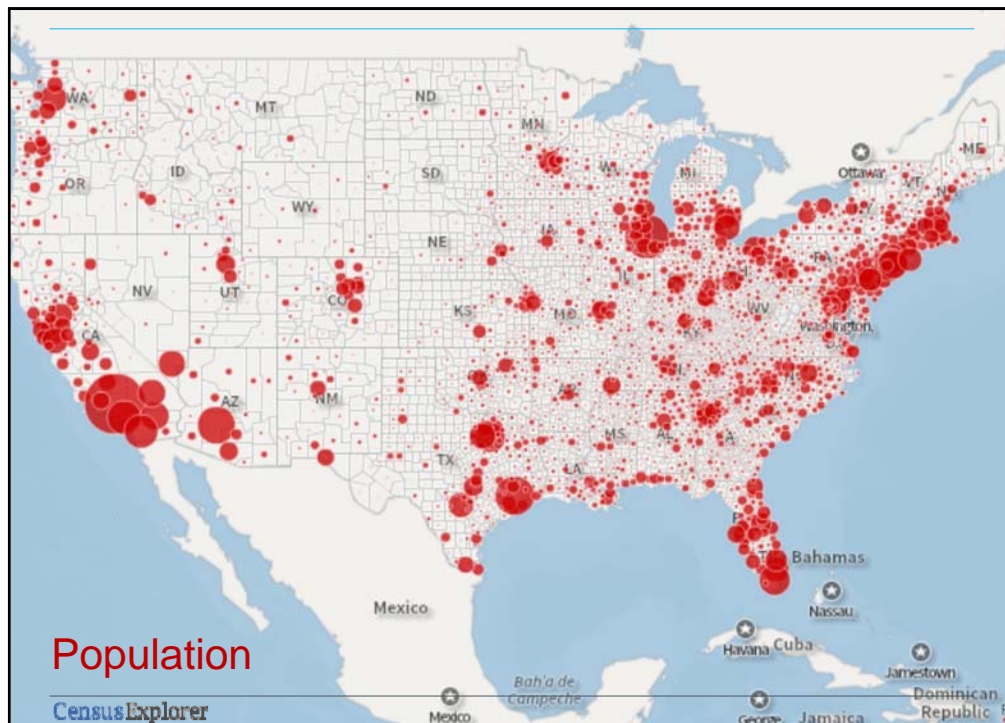
- Companies buy licensed spectrum and book them at cost
- Not amortized for financial reporting purposes but tested annually for impairment
 - ASC Topic 350
- For ad valorem purposes, Fair Market Value of a spectrum portfolio could be higher or lower than carrying cost:
 - Higher = The sky's the limit
 - Lower = Requires evidence of obsolescence

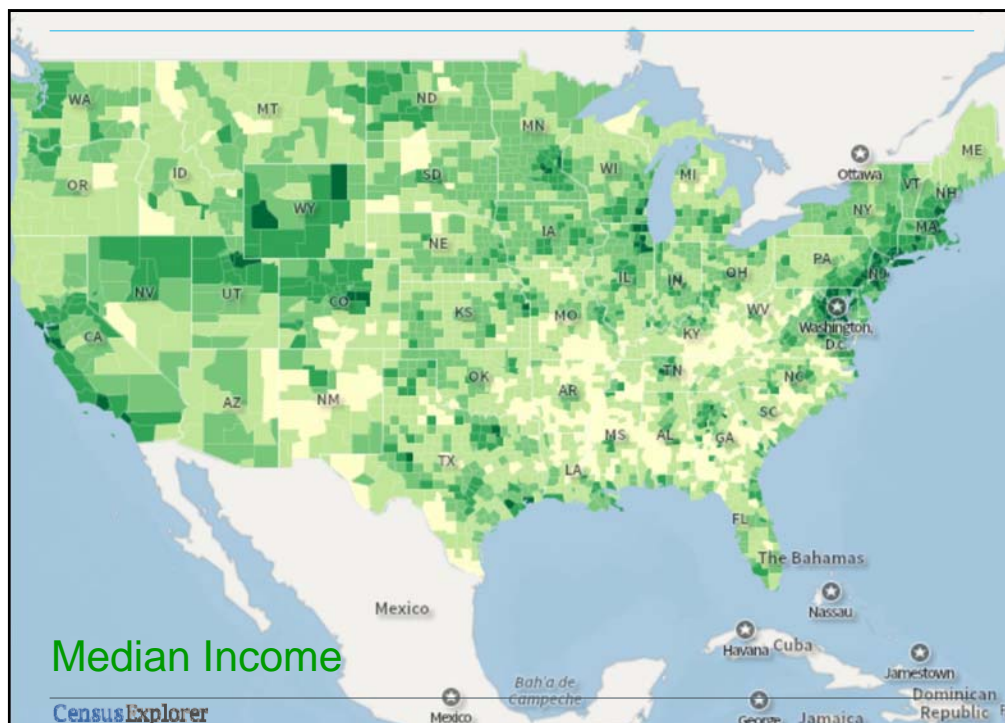
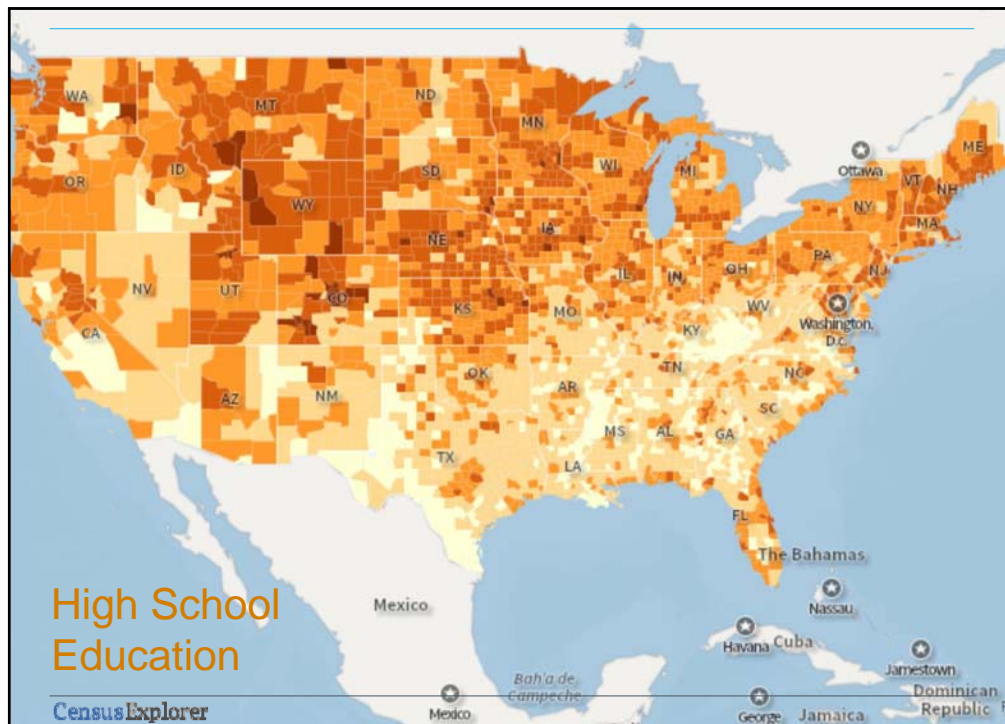
Spectrum – Income Approach

- Greenfield approach
 - Perspective of new entrant in wireless market
 - » Start with nothing
 - » Spend capital, gradually acquire customers and profit
 - Resulting NPV is value of spectrum held by carrier
 - Originated around an IRS tax court case
 - » Jefferson-Pilot v. Commissioner, 98 T.C. 435, 454-55 (1992), aff'd 995 F.2d 530 (4th Cir. 1993)
- Considers value of spectrum portfolio in totality from the perspective of an existing carrier with existing customers

Spectrum – Market Approach

- Analysis of comparables at individual market level
 - FCC auction results
 - Secondary markets
- Prices at market level can vary significantly based on:
 - Demographics (population area & density, median income, etc.)
 - Terrain of area served (flat, hilly, mountainous, water)
 - Number of competitors in existing market
 - Spectrum characteristics
 - » Frequency (700 MHz vs. 1900 MHz), Size (5 MHz vs. 10 MHz), Block (A vs. D), up/down contiguity, etc.
 - Sales Process (number of bidders)
- Value can also diverge from price paid due to age of transaction
 - Recent price appreciation due to growth in wireless market





Variability of Market Prices (Auction 73)

Maximum Price Paid, \$/POP-MHz Basis

Market	Chicago, IL
Median Income	\$47,408
% High School Educated	80.5%
Purchaser	Cellco
Frequency	Lower 700 MHz (704-710 / 734-740)
Block	B-Block
POPs	8,091,720
Bandwidth	12 MHz
Price Paid	\$892.4 MM
\$ / POP-MHz	\$9.19

Source:
FCC Spectrum Auction Data
<http://capcp.psu.edu/FCC/>

Variability of Market Prices (Auction 73)

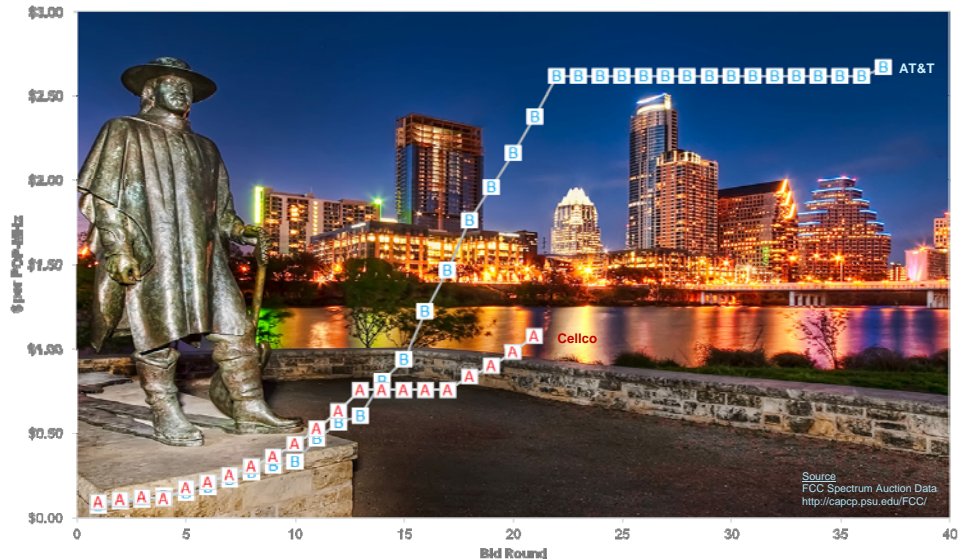
Minimum Price Paid, \$/POP-MHz Basis

Market	Ciales, PR
Median Income	\$13,722
% High School Educated	57.0%
Purchaser	VentureTel 700, Inc.
Frequency	Lower 700 MHz (704-710 / 734-740)
Block	B-Block
POPs	126,274
Bandwidth	12 MHz
Price Paid	\$28,500 *
\$ / POP-MHz	\$0.02

* VentureTel subsequently defaulted on payment and purchase was voided.

Source:
FCC Spectrum Auction Data
<http://capcp.psu.edu/FCC/>

Auction 73: Austin Market, 12 MHz, Lower 700 MHz Two Different Blocks With Two Different Prices



Steps to Perform Market Approach

1. Examine transactions and determine value drivers on a dollar amount per MHz per POP (\$/MHz-POP) basis
2. Analyze same characteristics for each of the markets where a carrier owns and operates spectrum
3. Assign value drivers and determine spectrum value per market
4. Sum up the values of all spectrum markets held by carrier

Think of it as a giant regression analysis.

This Isn't Novel

- Market level analysis happens all the time in this space.
 - Spectrum Brokers: operate as middlemen in secondary market, use these drivers to help estimate pricing
 - Financial Reporting: wireless carriers with spectrum partners that look to pass along ratable costs associated with the market value of the spectrum co-holdings
 - Spectrum portfolio managers: assessing impacts of acquisition or divestiture scenarios
- Depending on the purpose, adjustments for strategic premiums embedded in sales prices may be warranted
 - i.e. goodwill for excess paid for spectrum

Highest and Best Use

- Value in use relies on transactions analyzed
- 600 MHz broadcast spectrum
 - Highest and best use is in the hands of a wireless carrier
 - Underutilized in its current use
 - Deduction from broadcaster's business enterprise becomes more problematic
 - Auction slated for mid-2015
 - When are these assets considered held for sale?