

Data Dilemma: Turnover and Commingling Perils of Using Traditional Method Market Analysis for Elder Housing Development and Takeover

Part 2 of 3

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To test the idea that traditional analysis is an unlikely source of risk protection, this second of three articles offers examples of two common errors that systematically bias net demand upward. Further, readers are encouraged to check the files of 1998 projects and ask, “What would Jack Welch do?”

You are the health care loan officer for a medium-sized bank. In recent years, your bank has had a couple of failed assisted-living facility (ALF) developments as well as some close calls.

Last month’s article may have stimulated thought in unlikely areas. You have accepted the notion that any analysis that can change results by whim is not reproducible or scientific.

However, there are two other ideas creeping into your mind:

1. While picking up some groceries, you think of turnover. At least some of the “studies” in your files did not even address turnover. Statistics that ALF residents have a

2.4-year average stay are known. Nursing homes are similar. By what logic was it correct to omit turnover?

2. A recent conversation with a demographer left you with the conclusion that the data that all these analysts use, commercially generated estimates “updating” the Census, are inappropriate for multi-million dollar decisions.

You make a trip to the files.

The more you look, the more arbitrary the “studies” seem. Most market areas chosen are roughly five miles in radius, with little consideration given to fast roads or urban versus rural settings. The “factors” chosen are based on “research” from outside the mar-

ket, but you can’t really find the details. Almost never is a market boundary “factor” or demand “penetration rate” developed from data drawn from within the market area being analyzed (except when counting and classifying supply of competing beds). Recreating the “study” from what the analyst describes appears unlikely. How does one reproduce a “psychological and physical” boundary?

You look a little more deeply.

Starting with turnover, you find three themes:

1. Many analysts simply ignored turnover. It appears the analysts who ignored it and gave it no mention were simply wrong.

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2. Some analysts looked at turnover during leaseup, but like the previous group, did not reach its conclusions from data inside the market area. You wonder why.
3. None of the analysts in your files even addressed the issue of turnover after leaseup. If all the other facilities need 40% per year, a five-year explanation might be appropriate. Bank loans are longer than the leaseup period. Granted, there might be reasons that everything would balance out to “stabilized occupancy,” as is the usual case, but what if they didn’t? You take a pencil and, on the back of an envelope, play out five years with ten facilities. It is true that ALF markets are highly local. What if a highly local situation were to recreate a scenario like the one revealed on the envelope?

Next is the question of data misuse. Virtually all analysts in your files take the same steps:

- They take commercially supplied Census “update” data (say from 1990 to 1998) and—

since the 75+ population is growing—usually add the “update” number to the Census number, creating higher demand.

- In a few cases, the higher demand pushed a project over to approval.
- Few of the analysts warned their clients of the difference in quality of the Census data (an actual head count) and the commercial estimated “update” data.
- You call a commercial data supplier and the demographer’s comments are confirmed. They tell you that their “small area” data, when clustered in a market area, are not suitable as the only reason to swing a “no go” multi-million dollar decision to a “go.”
So what do you do now?

A traditional market study, as shown in Part 1 of this series, should be labeled “My Best Guess of Market Area and Demand: My Analysis of Supply.” This means, in effect, that all thereferences to research,” the quantitative references, and the demographic appendix should be

removed. This would not make the study worthless; an experienced guess is often worthwhile, but it is not scientific, not empirically derived.

It is a simple task to check the files. If the studies in your files incorporate the methodological flaws listed in the first article, and if they have one or more of the errors listed in this article, and if the same errors are repeated in other studies, the reader might ask, “Is there something wrong with our certification process?”

It is not a sign of weakness to consult a specialist. General surgeons hardly ever do vascular surgery. Why is market analysis different?

Any lender, searching files, will want specifics. The three errors illustrated in this article have been chosen because they are easy to identify. If an analyst makes them in one study, it is likely he or she has repeated exactly the same errors in all other studies over the years.¹

Misleading with Numbers

This error leads the reader to believe that the analyst knows

A Summary of This Series

Recently, assisted-living development accelerated unchecked by previous rules and restraints, leading to many failures and losses. The last line of defense against unworthy entry to the market became the market feasibility study. These studies use the old (subjective) traditional method of analysis—almost universal in senior-living lending approval. It fails at both goals of market analysis: Identify risk and identify opportunity. Of the three key functions of analysis, the method also fails at two: market boundary trace and demographic demand. By contrast, the method excels at analysis of the supply of competing beds. Unfortunately, one out of three was insufficient to avert losses. The first article explored these issues.

The final article suggests combining the skills of traditional analysts with the rigor of quantitative analysts. Disciplined quantitative techniques require considerably more effort, specialists, and resources than the traditional method and are thus more expensive. However, since they actually reduce risk² where the traditional cannot, they are more cost-effective. Quantitative techniques offer risk reduction through a fixed, not elastic, standard against which to measure a proposed project. They can find risk and opportunity that are invisible to the traditional analyst.

NATIONWIDE, THERE ARE MITIGATING FACTORS TO THE 40-42% TURNOVER AVERAGE, PERHAPS TOTALING 30% OR MORE.... HOWEVER, VIRTUALLY ALL ALF MARKET EFFECTS ARE HIGHLY LOCAL.

things that he cannot know.

Suppose that you place a 2.001 inch platinum bar touching an arbitrary, elastic bar of approximately five inches, plus or minus 10 inches, most of the time, depending, maybe. What is the length of both bars together? It's not 7.001 inches.

A traditional analyst, upon multiplying a 5% "penetration rate" by the demographic contents of an arbitrary market area, in effect makes a similar error. We know that multiplying a vague number (the contents of an unknown market area) by a precise number (5.00%) does not convert the result from vague to precise.

The same logic dictates the traditional method has *no basis* for saying that a demand number even "lies between x and y," because the number from which it is derived is based on a totally arbitrary and nonreplicable market boundary. It has *absolutely no basis* (other than a guess) to report that "Demand is 232."

Turnover—a Bias toward Approval by Diminishing Supply

Ignoring or minimizing turnover biases results in funding approvals. For example, the average length of stay in an ALF (and also nursing homes) is on the order of 2.4 years.³ $1.00/2.4=42\%$ need to be replaced each year at every facility. This is obvious and

basic. Most analysts make arbitrary choices for turnover; some fail to allow for turnover at all.

A traditional analyst, determining net demand for an ALF, takes demand from the "penetration rate" model and subtracts the supply of competing beds, leaving net demand. If the desired number of beds to be built exceeds net demand, the project is disqualified.

Thus, the new facility has to lease 100% of its beds during the lease-up period (12-36 months, normally) and then the turnover quantity during successive years. In the late stages of the lease-up period, some of the original residents must be replaced. All this must take place in a field in which every other ALF and nursing home needs to replace about 40% of its residents each year.

Nationwide, there are mitigating factors to the 40-42% turnover average, perhaps totaling 30% or more; otherwise, there would be no such thing as "stabilized occupancy." However, virtually all ALF market effects are highly local. Some markets might net out to a zero effect; some might net out to a disastrous 30-40% real turnover. There is no law that ignoring turnover in the specific local market makes it equal to zero over five years.

Take a simple example. Demand is 1,200 and the supply of competing beds is 1,000. Many

traditional analysts will tell the client that net demand is 200. For a 100-bed facility, the result is a 100% safety margin. Locally, this may be incorrect. Demand is unaffected, but supply increases by 40% turnover. Supply—1,000—becomes 1,400. Net demand becomes -200. The safety margin just disappeared and turned into a deficit. The traditional analyst might argue that in year zero, the true net demand, by definition, is +200. That argument fails on the next question.

"Okay, you have defined net demand to be 200 in year zero. How about year 1? You have to finish filling the facility and compete with 400 new empty beds. You have overstated net demand by 400 beds plus the 100 you constructed, a deficit of 50%, and the situation can get worse over time, depending on the demographic replacement flow. Your 'safety margin' is now -500 beds. Where is that in your analysis?"

There are several valid ways to address the problem of turnover, but ignoring or minimizing it is not one of them.

Commingling

Commingling creates a bias toward approval by inflating demand.

The need for small area data. The U.S. has:

- 3,141 counties (Bureau estimates only age to this level, no income).
- 49,961 census tracts (16 per county).
- 226,399 block groups (4.5 per tract; 72 per county).⁴

Consider the elder housing market analyst's problem. Take,

for example, a nonurban area of a state like Pennsylvania, which has 155 block groups per county, double the national average. Imagine a cookie cutter coming down from the sky, cutting out 72 block groups, our example's core market area. The area is irregular, including parts of multiple counties, therefore excluding counties as basic units. Thus, one must go to the block group level—exactly the level at which the Census Bureau refuses to do an intercensus update. Moreover, the Bureau will not even attempt any income estimates, even at county level. That's a dilemma. How do we solve it?

Commingling is not a solution. Commingling occurs when the traditional analyst sends the market boundary to a commercial data supplier, who provides elder-related age and income small-area data (down to block group, 200-500 households) in three columns:

1. The last Census.
2. An estimate of the changes since the Census (the intercensus update).
3. A column that sums the two.

The sum column commingles the Census data and the commercial intercensus update, which are of totally different reliability—one is a head count; the other an office estimate.

Misuse can be illustrated through an example in which demand derived from Census numbers is C ; the same for commercial update is U . If C is 3,000, U is 500, and S (supply) is 3,100, then simple net demand, $C-S=100$, is negative. It disqualifies a 100-bed facility: however, including the "update" $(C+U)-S=400$ apparently qualifies the project.

TRADITIONAL ANALYSIS COMMINGLES CENSUS DATA AND THE COMMERCIAL INTERCENSUS UPDATE, WHICH ARE OF TOTALLY DIFFERENT RELIABILITY—ONE IS A HEAD COUNT; THE OTHER AN OFFICE ESTIMATE.

Virtually every traditional analyst follows this procedure, and it is seriously flawed. U should *not* be used to inflate demand to tip a project over toward approval. Even the commercial data suppliers recommend against using U , the commercial update numbers, to make a multi-million dollar decision. There are valid ways to solve the problem of needing small area data, but commingling is not one.

Ask the data houses. Commercial providers usually do an excellent job of developing estimates of populations. They do not invent data, and they are not responsible for how these estimates are used by analysts.

In response to a query by e-mail about use of update data, one major supplier responded, "Even the best demographic projections are subject to uncertainty, and that while they can make valuable contributions to multi-million dollar decisions, it would be risky to make such decisions based on such projections alone."

In fact, the moment a traditional analyst uses the column that adds U to C , the analyst is inappropriately commingling commercial data with Census data to make a multi-million dollar decision.

The problem with estimating small area data from demographic data. Since smallness is the enemy of accuracy, data sup-

plier office estimate data cannot be good enough for multi-million dollar decisions.

Consider the detail for making estimates within a single county for age (7 categories) and income (7 categories). $7 \times 7 \times 72 = 3,528$ cells have to be filled with data. Lacking even a partial head count, the odds are against an accurate update estimate for every block group, no matter how sophisticated the computer program.

The data houses—based first on Census and Census updates and then with what they can assemble—provide age and income down to the block group level, based only on office estimates, for our example 3,528 estimates. Although some of the data suppliers are very good and use the best computer methods, it is likely that the commercial update data are not stable enough. Thus, commingling data is most likely to be a serious error.

The choice is not between the data supplier and nothing. There are reasonable alternatives.⁵

What Would Jack Say?

Imagine Jack Welch, of General Electric, responding to a manager:

"Let me see now, we lost over \$400 million from 1998 alone; 33% failures, 60% failing to meet objectives. The starts are down 50% and are still falling.

**THERE IS NO MAGIC OR PRESTIGE IN BIG FIRMS THAT
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RISK PROTECTION. NOR IS THERE MAGIC IN THE
EXPERIENCE OF A FIRM THAT HAS DONE A THOUSAND
STUDIES BUT REPEATS THE SAME OBVIOUS ERRORS
NOT JUST ONCE, BUT A THOUSAND TIMES.**

This has been going on for at least four years while the demographic market is increasing. You're using 30-year-old methods to find risk? Yes? *Why?* Maybe the competitive situation hasn't changed? *It has?* How have you employed technology to reduce risk and find the right pricing level? You *haven't*? How about using technology to find opportunity? *No?* What have you done to improve your track record? *You have certified more traditional analysts to do more of the same?* These are the people who abuse numbers, often don't allow for turnover, and who commingle data? Oh, *great idea.*"

In the face of these failures, it appears that neither analysts, nor lenders, nor developers have looked very hard for an alternative to the traditional method. Jack Welch might be more active.

Time for a Trip to the Files

Comprehensive data on both losses and on analysts' practices are not public. They reside in bank files in the form of project "market studies." With three examples from this article available—misleading numbers, turnover, and commingling, the reader is invited to examine the record of past projects and look at these topics:

- **Traditional method.** Look for an arbitrary market boundary

selection.

- **Misleading numbers.** Was a 5% "penetration rate" applied to the contents of an arbitrary market area? Watch out for the report of a specific demand quantity (for example, "232 beds").
- **Turnover.** Check to see if net demand was reduced to reflect turnover. If not, would an appropriate reduction in net demand have converted an approval to a denial? How many years were analyzed?
- **Commingling.** Watch out for "update" data and Census data added together in the total that supports the "demand" estimate.

Let us know if we, the authors, are right or wrong. Only you can open your file cabinet.

Conclusion

The traditional method is long overdue for a full reexamination. There is no magic or prestige in big firms that sell studies that offer less than the best in risk protection. Nor is there magic in the experience of a firm that has done a thousand studies but repeats the same obvious errors not just once, but a thousand times.

Make a visit to the files. In addition:

- **Lender—**minimize risk.

Team a quantitative analyst and a local traditional analyst. The former provides the fixed yardstick. Such a team will separate computation from interpretation.

- **Developer—**reduce risk and explore opportunities, now invisible, by using the new quantitative tools. Market analysis fees will be higher, similar to those of ten years ago, but much more cost-effective.
- **Analyst—**stop being a cost to be minimized. Team with a quantitative analyst to expand business by serving your clients better. Gain satisfaction with richer, more effective analyses that not only can reduce risk but also can find fresh opportunities. □

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Notes

1 Market analyses are closely held and all markets are very local. This article is not based on thousands of studies but on the errors in studies reviewed so far; plus public explanations by analysts of their method are remarkably consistent. If these errors, which result in a bias toward approval, are as widespread and consistent as they appear to be, the effect is not just local, it is national. Nationwide, imagine hundreds of developers (who are naturally optimistic), depending on market analyses, who, through error, are overly optimistic. The logical result is overfilling the market at too optimistic a price, with many developments going broke as a result.

2 See Footnote 2, first article, concerning r squared.

3 ALFA, "1996 Overview of the Assisted Living Industry," provided by Assisted Living Federation of America, 11200 Waples Mill Road, Suite 150, Fairfax, VA 22030.

4 Telephone inquiry to Bureau of the Census, Estimates and Updates.

5 Alternatives to data suppliers' intercensal updates involve work by analysts to determine threshold of need and, if necessary, a consultation with a demographer.