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Natural Vacancy Rates in Commercial Real Estate Markets

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With the slowing economy, vacancy rates in commercial real estate markets have risen sharply over the last two quarters. Nowhere is this more evident than in the Twelfth District, where vacancy rates in the key high-tech markets (San Francisco, San Jose, and Seattle) have increased four-fold since the fourth quarter of 2000. The sharpest increase in the country over this period was in San Francisco, where vacancy rates rose from 1.7% in 2000 Q4 to 10.3% in 2001 Q2; this also was one of the sharpest two-quarter increases observed at any time over the past twenty years.

We tend to believe that an increase in vacancy rates is bad news for property owners. If the vacant space has been created by tenants' business failures, then it is likely that owners will have to lower rents in order to re-lease the space. Of course, increases in the vacancy rate could very well be good news for tenants and for the overall economy if an unnaturally low amount of available space is choking economic growth. To analyze the economic impact of changes in the vacancy rate it is necessary to have a reference point for what might represent an equilibrium vacancy rate. In this *Economic Letter*, I describe a useful benchmark—the so-called “natural vacancy rate”—and show how current vacancy rates compare to their benchmark rates.

Trends and levels in vacancy rates

Figure 1 plots vacancy rates for six major commercial real estate markets in the Twelfth District. Two features stand out clearly. First, all six markets show signs of cyclical influences. Vacancy rates were extremely high in the late 1980s and early 1990s, as markets across the country weakened in the wake

of what, with perfect hindsight, appears to be a period of significant overbuilding. Emerging from the 1991 recession, vacancy rates declined to extremely low levels by historical standards. While these markets have not moved in perfect unison over this period, it seems clear that they all have some exposure to common factors.

Second, while different markets display roughly the same movements over time, the levels of vacancy rates appear to be quite different across different markets. These differences are so persistent that they must reflect some underlying structural differences in the markets themselves. Thus, it becomes clear that the economic implications of a 10% vacancy rate for San Francisco could be very different from the economic implications of a 10% vacancy rate for a city such as Phoenix.

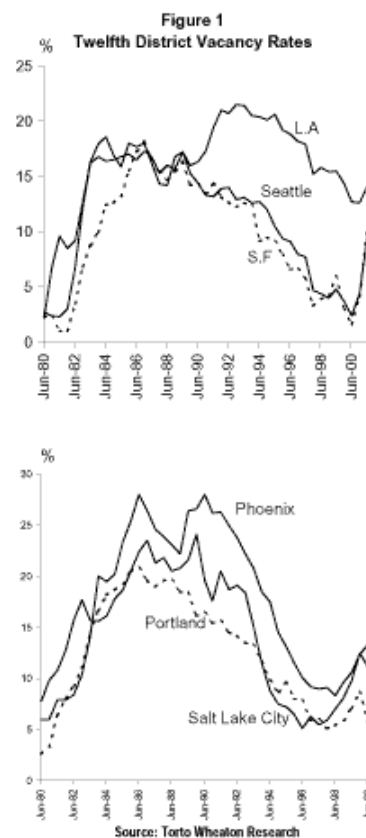
The natural vacancy rate

The theory of the natural vacancy rate acknowledges the reality that real estate markets are characterized by frictions that tend to impede the process of market clearing (in a frictionless economy, the requirement that supply equals demand implies that vacancy rates should be zero). Real estate markets, in fact, are very decentralized so that it can be difficult at times to match a particular office space with the most appropriate tenant. Landlords, of course, wish to lease to tenants who are most willing to pay for their particular space and will set rents so that not all tenants will find the lease attractive. Thus, even in equilibrium we should expect to observe some empty space (see Wheaton 1988).

Exactly how much empty space is “natural” for a market depends on how responsive (elastic) demand and supply are to economic shocks. On the demand side, suppose, for example, that tenants are relatively insensitive to changes in rents. This might occur because location is important for the tenant (law firms need to be close to the courts, high-tech firms tend to cluster in regions with research universities). All other things held constant, we might expect vacancy rates to be low in this type market because tenants are basically “price takers,” meaning that the expected return to searching for cheaper space is low.

On the supply side, suppose that it is very easy for developers to bring new space to market after an increase in demand, perhaps because there are few zoning complications or because there is an abundance of open land on which to build new structures. Again, holding all other features of the economy constant, we would expect that vacancy rates would tend to be high in this type of market. Favorable economic developments, such as high employment growth, would lead to increased demand for new space. Fast response by developers building ahead of the employment growth would tend to keep the vacancy rate higher than in a more constrained market.

When estimating the natural vacancy rate for a market, researchers are presented with the problem that only actual vacancy rates are observed. The natural rate must be inferred from the history of actual vacancy rates. Researchers, therefore, have sought to estimate the natural rate by relying on the intuition that a natural rate is a level to which vacancies revert after a shock. Accordingly, much work has focused on developing time series models of the vacancy rate that allow for this reversion to a natural rate. In an influential article, Voith and Crone (1988) propose a model where vacancy rates are assumed to be susceptible to local shocks (for example, the defense industry downsizing in Los Angeles in the early 1990s) and to aggregate level shocks (for example, changes in interest rates). As the



literature on the natural vacancy rate has developed, it has become typical to assume that the natural vacancy rate varies over time and that vacancies are allowed to adjust slowly to the natural rate.

Estimates of the natural rate using the Voith and Crone (1988) specification are shown below in Table 1 for the six Twelfth District metropolitan areas already discussed as well as for two major commercial real estate markets outside the District.

The results show a great deal of dispersion in the natural vacancy rate across different metropolitan areas. One pattern that emerges is that supply constraints are important in explaining the cross-sectional differences in vacancies. Cities with lower estimated natural vacancy rates, such as Boston and San Francisco, face geographical limitations on new construction in the central business district; San Francisco, in particular, is almost completely surrounded by water. In the language of the analysis presented earlier, these cities are characterized by extremely inelastic supply curves. Quite possibly, tenants in Boston and San Francisco also have inelastic demand, since there is little incentive to search or wait for new space to come to market.

In contrast, cities with higher estimated natural vacancy rates, such as Houston and Phoenix, face fewer geographic limitations. Both cities have an abundance of flat land on which to build new structures. In the case of Houston, an extremely liberal approach to zoning also lowers the costs faced by developers in constructing new buildings.

Comparing the estimated natural vacancy rates to the actual vacancy rates in this panel of markets affords yet another perspective on recent developments beyond simply noting that vacancy rates are higher (or lower) than last quarter or higher (or lower) than average. In most Twelfth District cities, current vacancy rates are close to or above the estimated natural rate. Thus, the observed increases in vacancies should be interpreted as more than just easings of tight market conditions. We would expect these developments to lead to less new construction and lower rents. The San Francisco market, in particular, appears to have suffered disproportionately in the slowing economy. Figure 2 plots the natural and actual vacancy rates for this market. While conditions there were extremely tight during the

Table 1

Natural Vacancy Rates, 2001.Q2

	Estimated natural vacancy rate	Actual vacancy rate
Boston	7.2	8.7
Houston	17.0	13.6
Los Angeles	12.2	14.1
Phoenix	15.0	16.9
Portland	10.9	9.9
Salt Lake City	13.3	15.3
San Francisco	7.9	10.3
Seattle	10.9	9.4

dot-com boom, the ensuing dot-com bust coincided with an actual vacancy rate almost 2.5 percentage points above the estimated natural rate. Interestingly, the one major exception to this pattern is Seattle, where the current rate of 9.4% is slightly below the estimated natural rate of 10.9%. This is notable because Seattle has often been thought of as having a vulnerable office market because of the relatively large amount of new construction currently taking place. The natural rate estimates provide some justification for the new construction, at least up to this point.

Conclusion

The slowing of the overall economy and the specific problems in the tech sector have led to rising office vacancy rates. While vacancy rates generally remain well below the highs of the early 1990s, they have pushed above the natural vacancy rates in several metropolitan areas in the Twelfth District. A fully developed theory of landlord and tenant behavior would predict that vacancies in those areas should begin to ease back towards their natural levels; we should see rents drop and plans for new construction postponed. How quickly this easing will come about, of course, will depend on a number of factors, such as the amount of new construction already in the pipeline and the persistence of the shock to demand.

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