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Land Prices, Urban Sprawl and Affordable Housing: Dublin and the Open City

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Abstract: Dublin's current boom shares many features with urban booms elsewhere. In this short paper, I suggest applying an open city framework to Dublin and looking at this framework's implications for two policies closely related to housing. I conclude with a scheme that should accompany future Dublin development.

I INTRODUCTION

Can it get worse?

> The exodus of working-class residents is creating both commercial problems and political strife. Nurses ... went on strike last month to demand wages that would allow them to live closer to where they worked, rather than enduring a commute of several hours. A quarter of the positions in the ... police force are empty because officers, unable to live near the town, have resigned.... Hence the cry for more 'affordable housing': subsidised accommodation reserved for those who work nearby and cannot afford the market rates. (Economist, July 22nd 2000)

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To be sure, this is an article on Palo Alto in California, not on Dublin. But policy issues seem strikingly similar. Maybe we can hope for remedies from looking at elements common to any urban boom? To focus on these, this paper will skip over most intricacies of Dublin urban life. Surely, this will make the paper's conclusions more controversial – as they should be, also given the paper's emphasis on long-run ("equilibrium") phenomena.

In the five year period between 1996 and 2000, average new house prices in Dublin have almost tripled. Clearly, it seems, most shifts in housing demand have outpaced shifts in housing supply. On the one hand, demand, according to this view, has been driven by higher incomes generated by the "Celtic Tiger", by immigration, and by low interest rates. On the other hand, supply, while in principle responsive, has been held back by bottlenecks in infrastructure and by bottlenecks in processing developers' applications.

If this is an adequate description of the Dublin housing market, then government is effectively rationing housing demand. Rationing would be responsible for welfare losses: houses are not built that landowners and households would to their mutual benefit like to see built. Fortunately, because government is responsible for market failure it can just as easily cure market failure. A straightforward policy would be to remove bottlenecks in Dublin infrastructure and planning. Also, this policy could be justified on other than Pareto-efficiency grounds. For example, houses might be too expensive to be affordable for a large minority of Dublin's population. Then reducing bottlenecks would also serve to benefit this group.

Implicitly, this conclusion assumes that the price elasticity of housing demand is less than perfect: only then can more supply make housing more affordable. Or, in the parlance of urban economics, Dublin must be a "closed city". In a closed city, falling house prices due to a government induced supply shock would make future potential buyers better off.

But what if housing demand were very (or even perfectly) elastic? Would our interpretation of housing and transportation policies have to be modified? And if so, would conclusions on housing policy and transportation policy be the same? Four short sections follow. First, we look at an alternative interpretation of how the Celtic Tiger might have affected Dublin (Section II). Within this framework, we look at the effects of two policies prominent in the National Development Plan 2000-2006 (Section III). Then we ask how the observed pattern of Dublin suburbanisation might add to our explanation (Section IV). Finally, Section V offers an option for future policy.

II AN ALTERNATIVE FRAMEWORK

A city where demand for housing is perfectly elastic is an "open city", as proposed by Polinsky and Shavell (1976). By definition, if a city is open anyone outside the city may locate inside it. Only, such an "immigrant household" would have to outbid an "indigenous household" to acquire the right to live on his plot. Alternatively, the immigrant may bid for land at the city's edge. Either way, potential immigrants will bid for Dublin locations as long as their utility from living and working in Dublin is higher than their utility from living and working where they currently are. After these adjustments have taken place, well-being in Dublin will be the same as elsewhere.

Such bidding is what has happened over the course of the Celtic Tiger. As employment and wage growth have been localised in Dublin, Dublin has tended to become more attractive. But higher attractiveness has – via bidding from inside and outside – translated into higher rents and higher house prices, offsetting the initial gain in attractiveness.[1] In Figure 1, the "bid rent" schedule B shows households' initial maximum willingness to pay for a plot of land. Bid rent R falls with a location's increasing distance d to Dublin's central business district, reflecting longer commutes.[2] And the schedule B´ corresponds to the bid rent after the Celtic Tiger has pushed Dublin incomes.

The increase in rent on plots already built up (i.e., within distance d of the city centre) has strong implications for income distribution. Not only is income growth for Dublin's tenants and first time buyers completely capitalised into higher rents and house prices. Property taxes absent, these higher rents are also appropriated in full by Dublin's land/home owners, adding to those wage gains that accrue to land/home owners and tenants alike.[3]

Moreover, the simple diagram shows that bid rents for plots located beyond d increase, too. Were these plots fully zoned and connected to urban infrastructure, they immediately would be taken up by immigrants. Dublin's

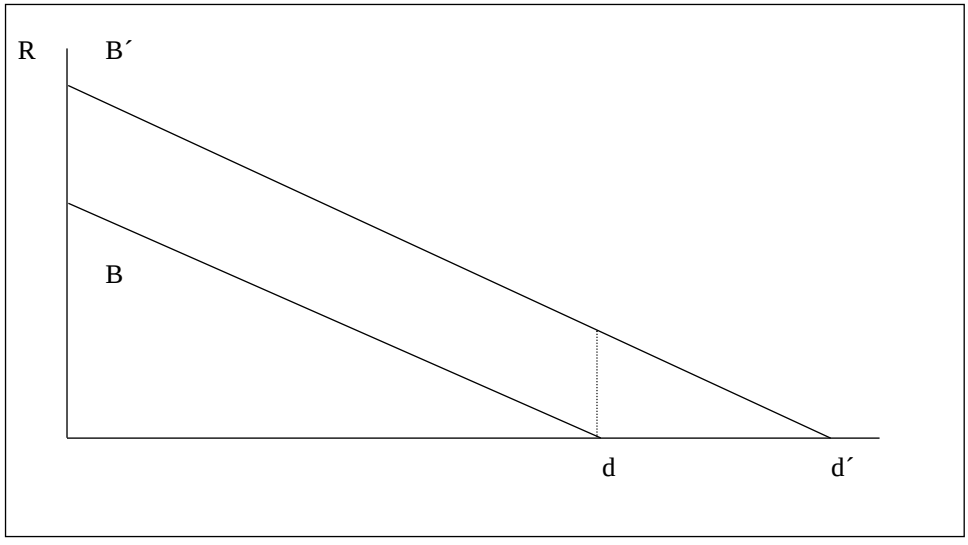
1. In what follows, house prices, land prices, and rents are interchangeable.

2. So we are effectively assuming Dublin is a "circular city", with residential areas surrounding the "central business district". Households have identical preferences, face identical constraints and are perfectly flexible in where to locate. The reservation level of utility elsewhere is exogenous. The agricultural land rent is zero. Commuting costs are linear in distance. These are somewhat "intuitive" assumptions.

3. This is how I argue in Dascher (2000). In fairness, these wealth gains might, through their widespread incidence among Dublin's population, have eased political acceptance of the Irish government's strategy of attracting FDI – with its potential long-run benefits for every household at any location in Ireland.

size would increase without further delay. Only, for some reason adjustment is not so quick. Explanations given above pointed to bottlenecks in infrastructure provision and planning permission. (A very different explanation we will discuss in Section IV.) Whatever the cause, shortly after the onset of the boom Dublin must be seen as effectively being "growth-controlled". So the following discussion can draw on results on growth-controlled open cities, as given in Engle, Navarro and Carson (1992). Note that the growth-controlled open city is not the same as the closed city. In the growth-controlled open city, at least, immigration is possible to the extent of outmigration. For example, in driving up rents in the growth-controlled open city immigrant households may well replace indigenous households.

Figure 1: Bid Rent and an Increase of Income



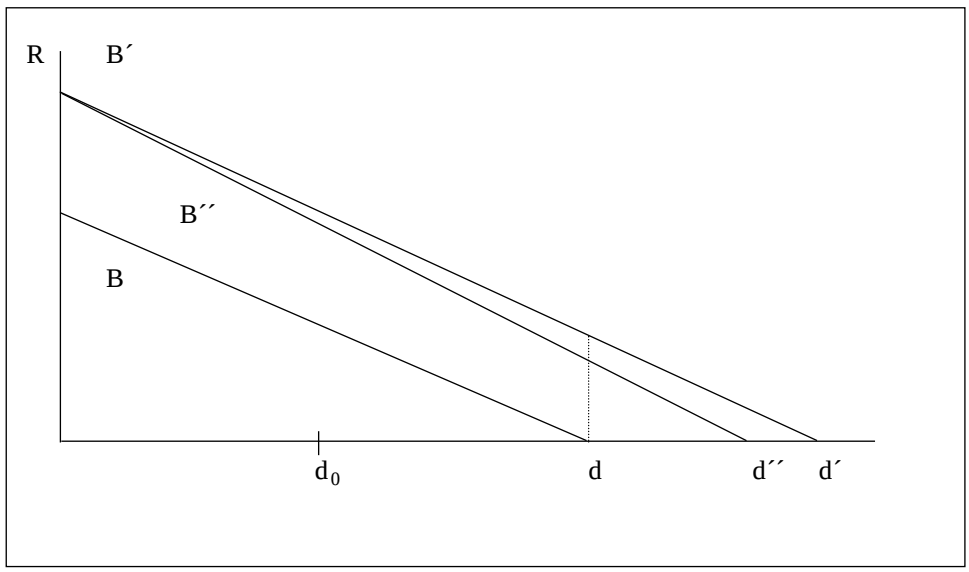
Much in line with reality, the diagram predicts pressure to develop Dublin's vicinity. Owners of land with distance between d and d´ to the city centre want to sell to immigrants. Since rents are involved, we should also not be surprised to find some to "seek rents". Following McDonald (2000), there is forceful evidence of such attempts in and around Dublin:

> Speculators would acquire options on parcels of land and persuade the county council to rezone it, netting enormous sums of money. (p. 204) ... Week after week more agricultural land was falling prey to this frenzy of land rezoning done by councillors at the behest of those who stood to make

massive windfall gains. (p. 231).

Owing to this activity, some of the plots between d and d´ are being built on, too. Dublin's size and population increase over time. New arrivals locating at the periphery need to travel to the central business district, too. But given a fixed capacity of commuting infrastructure, commuting costs must then increase. Households living far from the city centre suffer most, households living closer suffer less. For almost all households (with the exception of those living where they work) there is less money available for bidding for land. In Figure 2, hence, the bid rent schedule turns downwards from B´ to B´´.

Figure 2: Bid Rent and Congestion
Source: Engle, Navarro and Carson (1992, p. 276).



As a result of congestion, there is less developable land. Distances beyond d´´ simply become unacceptable. But what is more important, owners of land closer to the city centre than d see their land values fall. In a dynamic context, growing congestion caused by settlement at the periphery would explain why, recently, Dublin housing price increases appear to slow down. According to Bacon (2000, p. 1) has the "rate of increase in prices ... in Dublin ... slowed down sharply since the middle of 1998, the time from which Government measures to redress market imbalance were instituted". Seen from within the open city environment, this conclusion seems overly optimistic. Slower

increases in prices signal increasing congestion and, hence, less maximum willingness to pay rather than a successful government policy.

III GOVERNMENT POLICIES IN THE SMALL OPEN CITY

This is not the only difference as regards conclusions. Not surprisingly, in an open city environment conclusions as regards policies differ, too. In an open city, we assume an infinite supply of potential entrants into the Dublin housing market. Such households willing to invest if housing prices fell slightly would not just be Irish remigrants (the stock of which has been depleted due to past remigration, as Fitz Gerald et al. (2000) note) or households from the Republic's periphery. They would also include numerous younger Dubliners still living with their parents, i.e. individuals with truly no migration costs at all. This "infinite" supply makes it virtually impossible for government to increase the well-being of landless Dublin households (at least without further instruments). To see this, we revisit the two policies of stimulating housing and improving Dublin transportation.

In the "Action on Housing" (DoELG 2000a), stimulating housing supply is partly through "Strategic Development Zones for Housing". In terms of Figure 2, there might be "empty" plots at distance d_0 of the city centre, such as brownfield sites, railway tracks, public parks, sports grounds, etc. Allowing residential development there would increase the population at distance d_0. But it would not change the corresponding bid rent. Landless Dublin households would not find housing any more affordable than before.

Improvements in Dublin transportation are another essential element of the National Development Plan (see Department of Finance, 2000, Table 4.1). Further housing must be linked to the existing transportation network. In the open city environment, such transportation investments operate somewhat differently than rezoning land – always assuming that more capacity is not immediately consumed by higher usage. As transportation investments successfully reduce commuting costs, they make the initial level of house prices more bearable. Households within and beyond Dublin will bid for the right to live close to where commuting has become easier. Much as above, such bidding translates into higher house prices. In the extreme, bidding continues until the entire benefit of faster commuting to the central business district is completely offset. Public investment would capitalise into higher prices for housing. There would be no net benefit at all to tenants or first time buyers.

These are disappointing results. Neither stimulating housing supply nor improving transportation infrastructure helps landless households. Only values of rezoned land or values of houses near to new transportation nodes

are bid up. So both policies benefit current land and home owners. In Polinsky and Shavell's model landlords are "absentee". This might well characterise the Irish society of the nineteenth century. But today's Dublin could not be further from it. Owner occupation is the prevalent mode of housing tenure. Surely then a large fraction of Dublin population stands to gain from housing and transportation policies. Ironically, these households are not the addressees of a housing policy intended to support Dublin's landless households. Nor are they the sole addressees of transportation investment. Incidentally, that is what they will be.

IV INTERPRETING DUBLIN'S SUBURBAN SPRAWL

Earlier, we asked why Dublin should have been growth-controlled at the beginning of its current boom. The explanation given referred to bottlenecks in infrastructure and planning.[4] But where do these bottlenecks come from? Do they simply reflect inevitable lags in implementing and executing plans for new infrastructure? Do they reflect government inertia? Or do they even reflect a deliberate government choice? Going back to Figure 2, developing land between d and d´´ means gains for owners of peripheral land. It also means losses for owners of already developed land. (Note that renters and first time buyers are not affected.) Put differently, developing peripheral land imposes external costs. Engle, Navarro and Carson (1992) suggest that the perspective of land value losses through higher congestion will incite owners of developed land to vote against further development.

Pitting owners of developed land against owners of developable land generates interesting predictions for the residential pattern in the Greater Dublin area. (These predictions should also be understood as another opportunity to test the validity of the open city framework.) First, conflicts of interest between the two types of land owners explain why development within Dublin proper is not complete. Here, Dublin homeowning households – constituting a large share of voters for the Dublin county council – have successfully resisted further development. As a related example, McDonald points to minimum lot size regulation in Dun Laoghaire Rathdown County... "there was outrage when the council abandoned ceilings on residential density in the old borough to consolidate the built-up area" (p. 235). However, planning decisions in surrounding counties are made by yet different County Councils. These are elected by an entirely different group, partly also

4. On these bottlenecks, see Fitz Gerald et al. (2000, pp. 148-150).

comprising the owners of developable land. The result is that development is passing over undeveloped land in Dublin. As growth controls are gradually lifted, a patchwork-like spatial pattern emerges: "urban sprawl".[5]

It seems tempting to interpret low past investment into mainline rail from a property values perspective, also. Improvement of rail between Dublin and other cities (or even between non-Dublin Irish cities) has not really been on the political agenda. Here, too, those who stand to gain from better and more frequent inter city connections are owners of developable land in, say, Athlone or Wicklow. Dublin's property values being largely unaffected, her extraordinary weight in national political decisions seems to well predict the observed lack of interest.

V POLICY

We have identified redistribution caused by ongoing growth in Dublin's periphery, by investment in transportation, and by zoning land for residential development. To be sure, this is not to say that, say, a transportation policy should not be pursued – to the contrary. But can we maybe devise instruments that compensate those who lose by taking from those who gain?

To be sure, our all too stylised setup has made us lose sight of important real world problems connected with less-than-perfect mobility. Rents will not immediately adjust downwards in response to higher congestion. Moreover, taking from winners must run into political difficulties. The Celtic Tiger has driven up land values and house prices. Also, relaxing growth controls has driven up land values for owners of undeveloped land. It might seem an attractive option to tax some (or all) of these increases in housing prices and land value. In fact, this idea is reminiscent of the "Henry-George-Theorem". According to this theorem, not only can incomes from increasing land values be taxed away without efficiency loss. Also, the corresponding tax revenues might – under certain circumstances – be just sufficient to completely pay for the public goods that caused land values to rise in the first place (see Arnott and Stiglitz, 1979).

However, in 1979 Ireland has abolished the property tax which might have served as a proxy (see Callan, 1991, p. 8). Today's widespread homeownership does not really encourage its reintroduction. Note, however,

an important surrogate instrument introduced in the Planning and

[5] We could add that residential externalities play a role besides commuting externalities, too. Again, McDonald is a source of numerous examples where residents of suburbs protest against adjacent development.

Development Bill, 1999. There, "a planning authority may require ... the transfer ...of ... up to 20 per cent of the land ... at existing use values" (Department of Finance, 2000, p. 70; author's emphasis). Interestingly, this is an implicit tax on land to be developed, though not on land already developed. Is this, here too, reflecting Dublin's political weight in national decision making?

Giving to those who stand to lose does not seem easy, either. Social housing, on the one hand, makes cheap housing available – to those who are next on ever longer waiting lists (McDonald, 2000, p. 341). And in many countries, social housing is known to be overly expensive. Grants to first-time buyers and subsidies to tenants, on the other hand, are more successfully targeted to those with low incomes. But they in the long run capitalise into higher house prices and rents. In fact, this already seems to happen for existing grants and subsidies (see McDonald (2000), p. 334 and Fitz Gerald et al. (1999), p. 152, respectively).

This last point is familiar by now. Capitalisation is a result of being open. But maybe we can avoid capitalisation by what one might call an additional rental support scheme (ADRES). So ADRES would have three important components. (1) Rent support within ADRES would have to be additional to current rent support for low-income households! Moreover, ADRES would be restricted to (2) "indigenous households" who are (3) made worse off by some exogenous shock or policy. "Indigenous households" would be defined as those households that are resident in Dublin today. Future immigrants would be excluded from additional rent support. Future immigrants would be at least as well off in Dublin as they are elsewhere – otherwise they would not immigrate. It seems legitimate, then, to restrict ADRES to indigenous households who have actually been made worse off. Moreover, ADRES should capitalise much less into higher rents and higher house prices.

Slight variations on all three components of ADRES seem possible. Newcomers might become eligible for additional rent support, but only after some time. Additional rent support could be granted to all indigenous households, not just to those made worse off. Or, instead of being additional to current rent support for unemployed low-income households rent support could be extended to low-income households that enter the labor market. This, in fact, would help to bridge the "unemployment trap" that Fahey and Watson (1995, p. 184) identify in the current system of Irish rent support.

But surely each such variation comes at a cost, not least for the government budget. So the proposal of any such scheme carries over to the question of funding (but is not tied to it). The larger the funding, the larger the scheme's potential to compensate future negative shocks. One possible method

to generate such funding would be to rezone selected parts of public lands in Dublin for development.[6] Houses could be built on these lands to be rented out to Dublin households. Their rents would provide a continuous stream of income to ADRES' funding body. As the general indexes on rents and house prices go up (fall), so do rent income and ADRES payments. In thus acting like an insurance against shocks on the housing market, ADRES would also make other urban policies more palatable (such as building tramways or LUAS).[7] Finally, we turn to the perspective of the policy maker. While the implementation of ADRES would have to confront many institutional details, at least its spending component should still be quick to implement. And while ADRES does reduce open urban space in Dublin, it should be able to meet approval among a majority of (today's) Dubliners.

[6.] Jane Jacobs's (1961, Chapter 5) view would probably be that large city parks are not necessarily good parks. Making parks smaller may actually make them better.

[7.] Clearly, redistributing part of the aggregate urban land rent to landless consumers is reminiscent of the public ownership case in urban economics (see Fujita, 1995). Also, insurance against variations in house prices is a central theme in Shiller (1995).

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