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**Strategic Public Housing and Foreign Direct Investment**

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# Strategic Public Housing and Foreign Direct Investment

by  
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**Abstract:** We suggest that public housing matters for FDI. We assume that FDI creates gains for some residents and losses for others. Losers from FDI will oppose FDI. To win support for FDI, local government may want to pay compensation in cash. In the paper's model, however, cash payments are not successful. But public housing is. – Ultimately we argue that (1) public housing makes FDI more palatable where (2) cash transfers fail, so that (3) local government may choose to invest into public housing to overcome opposition against FDI.

**JEL-Classification Codes:** F23, H42, R23

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”Hong Kong and Singapore intervened heavily in housing markets to win the support and cooperation of non-elites. By providing low cost housing for the majority of residents, both programs have helped to decrease inequality and minimize social unrest, thus providing the long-term stability attractive to investors.” (World Bank (1993, p. 163))

## 1. Introduction

According to the World Bank, large local public housing and high urban growth are no coincidence. Rather, public housing is seen as a successful instrument to stimulate growth. But, of course, *why* did Hong Kong and Singapore choose public housing, rather than a simple cash transfer, to win support? – In this paper we suggest an explanation of how public housing matters, and how cash transfers do not matter, to inward FDI and hence to growth. Here is a two-step outline of the argument:

*FDI is like many other reforms.* In our model, FDI creates gains for all residents; it imposes losses on some residents; and it does not affect non-residents. Gains from FDI occur as the urban wage rises. Losses from FDI arise from a negative technological externality. – Losers from FDI oppose FDI. To overcome opposition, local government may set up a cash transfer compensation scheme. In our model, however, access to that scheme cannot be restricted to losers from FDI. In our model, in fact, access cannot even be restricted to residents. Non-residents must be eligible, too. Then any cash transfer will merely attract non-residents who drive up rent.

*Public housing is unlike many other transfers.* In our model public housing, like cash transfers, cannot be restricted to losers from FDI. But in our model public housing, unlike cash transfers, can be restricted to residents. Moreover, by building up public housing local government shifts property rights from landlords to public housing tenants. Public housing tenants pay fixed rent. Hence they are sheltered from rent rises following FDI-induced wage rises. Residents who lose from FDI if they are private sector renters may actually benefit from, and hence approve of, FDI if they are public housing tenants. In short, public housing may favorably affect residents’ attitudes towards FDI in a way that cash transfers may not. Then local government should provide public housing, not cash transfers, if it is to win approval of FDI.

The paper is an attempt to contribute to the literature in two ways. First, many explanations of FDI focus on different locations’ relative attractiveness

to foreign investors. These explanations discuss "demand for locations", or, "supply of FDI", as in Mody/Srinivasan (1998). In this paper, in contrast, FDI is explained by whether or not a given location is actually intent on hosting FDI. This, instead, is a theory of "demand for FDI", or, "supply of location". In that respect our paper is similar to Janeba (2001). In order to focus on demand for FDI, we will largely neglect the issue of FDI supply. FDI supply simply is "there" or it is "not there". Briefly, by offering an explanation of why local public housing might matter to FDI, we suggest yet another "demand side", and to our knowledge novel, *determinant of inward FDI*.

Second, public housing is advocated, and condemned, on numerous grounds. For example, according to Rosen (1985), public housing is popular among paternalistic policy makers who want to enforce minimum housing consumption among public housing tenants. However, public housing also is more costly than an equivalent cash transfer, i.e., the cash transfer that would grant those not in public housing the level of utility that public housing grants to those in public housing (e.g., see Aaron/Furstenberg (1971), Murray (1975), Olsen/Barton (1983), or Wong/Lui (1988)). Briefly, by offering an explanation of why local public housing may matter to FDI – while cash transfers may not –, we suggest yet another, and to our knowledge novel, *distinction between public housing and cash transfers*.

We emphasize our focus on the small city's openness to migration. While ultimately we are interested in explaining FDI at the country level, at first we are interested in explaining FDI at the city level. FDI is not evenly spread over a country's cities. Rather, as stressed by Guimaraes/Figueiredo/Woodward (2000), foreign investors are, much as domestic investors, looking out for the economies at the heart of the new economic geography. These economies are offered by some cities but not by others. Then FDI upsets the initial regional equilibrium. By triggering migration and changes in rent, FDI produces redistribution from renters to landlords. This redistribution is important because it affects landlords' incentives to attract, and renters' incentives to host, FDI. This redistribution, however, could be overlooked if FDI is solely analyzed at the national, rather than the city, level.

That redistribution triggered by migration is important is a central lesson from the literature on local redistribution. In our model local government cannot tell native residents who lose from native residents who do not lose. Any local compensation scheme must encompass more than just precisely those who lose from FDI. Local government may try to restrict the scheme to native residents. However, "compensating" native residents who have not

lost from FDI while not "compensating" immigrant residents – who have not lost from FDI either – would be discrimination against immigrant residents. But discrimination against immigrant residents is not possible. This, at least, is the premise underlying much of the literature on local redistribution, see Wildasin (1991) and Crémer (1996).<sup>2</sup> Then local compensation runs into the same difficulty as local redistribution. With perfect household mobility and without discrimination against non-residents, local compensation attracts immigrant residents who simply drive up rent until the benefit from the "compensation scheme" is completely offset.

Note that we do not suggest any link between public housing and domestic direct investment. Domestic direct investment, so we suppose, imposes smaller losses on, and hence meets less resistance from, residents than FDI. This may be justified by pointing, in an ad-hoc fashion, to residents' fear of foreign influence on local decision making. But this may also be justified by pointing to the empirical evidence in Figlio/Blonigen (2000) that FDI indeed has a stronger influence on local decision making than domestic direct investment. When comparing FDI with domestic direct investment in a panel of North Carolina counties, Figlio/Blonigen find that FDI translates into larger reductions in local public spending on residents' (children's) education than does domestic direct investment.

In what follows, we will set up a two-period model. The first period represents the world before the advent of FDI. No foreign investor applies for permission to set up production in the small open city under consideration. The second period represents a world in which FDI becomes possible: Now a foreign investor may, or may not, present himself to the city and apply for permission. Whether or not FDI takes place, then, depends on the city's willingness to grant permission and provide the necessary infrastructure. There is a "régime change" from period 1 to period 2. Importantly, we assume that local government in period 1 is aware of the régime change.

We will show that local government may find it attractive to invest into public housing in the first period even though public housing offers no benefit then. This is because, with residents safe in public housing, local government can be sure to meet approval of FDI in period 2 in the event a foreign investor applies. The resulting - uncertain - second period gain to local government, of course, must be sufficiently large to offset the - certain - first and second period cost of public housing. This, then, is the model's *strategic public housing*, as in the paper's title.

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<sup>2</sup>There are few papers modeling, let alone recommending, discrimination against non-residents. Sandmo/Wildasin (1999) and Sinn (2002) are two of the exceptions.

Alternatively, of course, we could have assumed that local government is completely surprised by the régime change. Then local government would not undertake any strategic public housing. But the paper’s model would still predict that public housing, installed for other reasons than its potential to win approval of FDI, helps to win approval of FDI. – In section 2 we set out the model’s assumptions. Section 3 describes a game between local government and an interest group that represents the interests of losers from FDI. Section 4 collects two case studies from Hong Kong and Singapore. Section 5 concludes.

## 2. The Model’s Assumptions

### 2.1 Households

Consider a federation made up of many small open cities. We focus on one of these cities, say, city  $i$ . In what follows we drop the city index  $i$ , because all variables, unless explicitly noted, refer to  $i$ . There are three goods: a consumption good  $x$ , housing  $y$ , and a local public good  $G$ . The price of the tradable consumption good is throughout the same and set equal to 1. The price of housing, or, rent, is  $q$ .

There are two broad classes of households in the model: Landlords and renters. Landlords own the city’s housing stock  $T$  but are absentee. Landlords will be important because of their influence on local government. However, being absentee, landlords will not be relevant to local labor supply and local housing demand. Rather, it is renters’ housing demand and labor supply that matter to housing and labor market equilibrium. A renter’s only endowment is labor which he inelastically supplies to the city’s firms, earning  $w$  in return.<sup>3</sup>

Renters differ by origin and by preferences: Renters are either *natives* to  $i$  or *immigrants* into  $i$ . (If they are immigrants into  $i$ , they must be natives to some other city  $j$ , ( $j \neq i$ )). Natives either derive benefit from  $G$ , the local public good in  $i$  – or they do not. Natives to  $i$  who benefit from  $G$  we call A’s; natives to  $i$  who do not benefit from  $G$  we call B’s. Altogether there are  $A$  A’s and  $B$  B’s native to  $i$ , giving a total of  $N = A + B$  natives to  $i$ . Next, immigrants subdivide into immigrant A’s and immigrant B’s. Immigrant A’s appreciate the local public good in the city they come from while immigrant B’s do not. Nevertheless, neither type appreciates  $G$ , the local public good in  $i$ . To capture the different constellations we define an indicator  $I_j^k$ :

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<sup>3</sup>In the model housing and land are used interchangeably.

$$I_j^k = \begin{cases} 1 & \text{if } j = i \text{ and } k = A \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

where  $k$ , ( $k = A, B$ ), is the household's type and where  $j$  is the city a household is native to.<sup>4</sup> Then we assume that a household of type  $k$ , native to  $j$  and living in  $i$  has utility

$$u(x, y) + I_j^k G \quad (2)$$

A's or immigrant A's completely forego the benefit from the local public good when leaving the city they are native to. Hence  $G$  captures A-households' "home attachment", i.e., their attachment to the city they are native to.<sup>5</sup> In contrast, B's and immigrant B's are not attached at all.

We assume that all households are perfectly mobile across space. But we also assume that the benefit from the local public good is "sufficiently large" that A's always prefer to stay in the city they are native, and attached, to. It is merely B's – who are not attached to any particular city – that only ever consider leaving their home town. The implication is that there cannot be immigrant A's in  $i$  - only immigrant B's. The stock of immigrant B's resident in  $i$  we denote by  $\bar{B}$ . The total number of  $i$ 's residents is  $N + \bar{B}$ .

Clearly A's are always better off than B's. A's appreciate being attached to  $i$ . However, A's are also more vulnerable than B's. This is because below we will assume that FDI adversely affects the quality of the local public good. FDI generates a negative externality that reduces  $G$ .

## 2.2 Local Government

We index periods by superscript  $t$ , ( $t = 1, 2$ ), where variables not indexed are constant over time.<sup>6</sup> Local government is run by landlords. In the local public finance literature this is justified by assuming that all households are perfectly mobile (e.g., see Wildasin (1987)). In spatial equilibrium, then, utility is everywhere the same. Whatever local government does, mobile households do not bear any of the consequences. Only landlords do. Hence really only landlords should care about local government's decisions.

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<sup>4</sup>Note that  $i$  is the fixed city we focus on while  $j$  could be any city, including  $i$ .

<sup>5</sup>The term "home attachment" we borrow from Mansoorian/Myers (1997)

<sup>6</sup>Confusion with squares will not be possible. There are no squares in the paper.

However, by introducing home attachment in this paper, A's no longer have the same utility everywhere even though they are still assumed to be perfectly mobile. We must expect landlords and A's to struggle over who controls local government. In what follows we continue to assume that it is landlords who seize control over local government. However, A's are represented in local politics, too (by an interest group, see below).

In order to appease A's in the event that FDI takes place and A's get hurt, local government may want to offer cash. Only, local government cannot identify who native A's are. Nor can native A's credibly make themselves heard. Native A's are too similar to native B's. Not being able to identify the true losers from FDI is local government's *informational constraint*. Its implication is that any transfer designed to benefit native A's must also benefit native B's. In principle, this is a well-known fundamental dilemma of any compensation scheme (see Mas-Colell et al. (1995)).

Next, if native B's are eligible then immigrant B's must be eligible, too. After all, both types of B's exhibit identical endowments and preferences. A transfer offered to native B's though denied to immigrant B's would be discrimination. But extending a transfer designed to compensate native A's to immigrant B's defies the purpose of the transfer. Under the small open city assumption, immigrant B's will merely drive up rent until the transfer is completely capitalized into higher rent. This is a well-known fundamental dilemma of any transfer scheme in the presence of household mobility, as analyzed by a large literature on the feasibility of local redistribution (surveyed by, e.g., Crémer et al. (1997)). We follow this literature in assuming that discrimination is not possible. This is local government's *institutional constraint*.

Public housing offers a way out of this, for two reasons. First, to attract households public housing needs to be more attractive than private sector housing. Then there must be rationing, or, *waiting lists* in order to allocate public housing flats. But waiting lists clearly favor natives over immigrants. Natives become informed of, apply for, and get access to public housing much earlier than immigrants simply because they have been there "first". Moreover, and second, proving discrimination against immigrants under public housing becomes more difficult. Now it is not just new-arrivals who do not get to benefit from public housing. There are households who arrived earlier who have not yet succeeded in moving into public housing, either.

In principle we could cast our distinction between cash transfers and public housing in terms of differences in the "political costs" of discrimination.



Discrimination using cash transfers is highly visible and, hence, must involve large political costs. Discrimination using public housing is more subtle and less visible and, hence, involves smaller costs. In this paper, we simply argue that discrimination using cash transfers is not feasible while discrimination as regards public housing is.

That political costs of discrimination are lower with public housing than with cash transfers may also be inferred from looking at the empirical evidence. On the one hand, there is evidence that access to public housing is commonly restricted to natives. Painter (1997), for instance, notes that housing authorities in the US exhibit "local preference". Housing authorities prefer households living within their respective jurisdictions over households moving in from elsewhere.<sup>7</sup> On the other hand, US states no longer impose residence requirements when deciding on a household's eligibility for a cash transfer.

In what follows, public housing will only be granted to a fraction  $\mu$ ,  $\mu \in \{0, 1\}$ , of native residents, i.e., to  $\mu N$  households. Hence we assume that either all natives, or no native, will get to live in public housing.<sup>8</sup> The lump sum cash transfer  $\sigma^t$ , ( $\sigma^t \geq 0$ ), in contrast, is given to all residents not in public housing, i.e., to  $[(1 - \mu)N + \bar{B}^t]$  households. Landlords' aggregate housing endowment is  $T$ . Aggregate rent income is  $Tq^t$ .

The cost of providing public housing is  $\mu N \hat{y}(q^t - \hat{q})$ . Here  $\hat{q}$  is the fixed rent under public housing where, of course,  $\hat{q} < q^t$ . Also,  $\hat{y}$  is flat size under public housing. Aggregate local cash transfers are  $\sigma^t[(1 - \mu)N + \bar{B}^t]$ . Finally, local government may decide to invest into a pure public input  $\gamma^t$ , later referred to as "effort towards FDI". The costs of "FDI effort" are given by  $K(\gamma^t)$ , with  $K(0) = 0$  and  $K_\gamma > 0$ .

Then in  $t$  local government's (landlords') net revenue is

$$\mathcal{R}^t \equiv Tq^t - \mu N \hat{y}(q^t - \hat{q}) - \sigma^t[(1 - \mu)N + \bar{B}^t] - K(\gamma^t) \quad (3)$$

### 2.3 Utility Maximization

Household consumption takes place in two different periods. For simplicity, however, we assume that households are myopic. Households do not save.

<sup>7</sup>Also, the case studies on Hong Kong and Singapore in section 4 give examples of public housing being restricted to natives.

<sup>8</sup>For reasons explained below, this case is simpler to analyze than when  $\mu$  is allowed to take on any value between zero and 1.

Households are either private sector renters or public housing tenants. First we turn to maximum utility of private sector renters. Whether immigrant or native, or whether A or B, any private sector renter maximizes  $u(x^t, y^t)$  subject to the budget constraint  $w^t + \sigma^t = x^t + q^t y^t$ .<sup>9</sup> This gives Marshallian demands  $\tilde{x}^t = x(q^t, w^t + \sigma^t)$  and  $\tilde{y}^t = y(q^t, w^t + \sigma^t)$ . A private sector renter's corresponding maximum utility derived from the model's two private goods is

$$\tilde{v}(q^t, w^t + \sigma^t) \equiv u(\tilde{x}^t, \tilde{y}^t) \quad (4)$$

or, shorter,  $\tilde{v}^t$ . Using (1), a  $k$ -household native to  $j$  has maximum utility  $\tilde{v}^t + I_j^k G$  as private sector renter, where  $k = A, B$  and where  $j$  can be any city. Using Roy's theorem we have:  $(-\tilde{v}_q^t / \tilde{v}_w^t) = \tilde{y}^t$ .<sup>10</sup>

Next we turn to maximum utility of public housing tenants. A native allocated to public housing gets to live in a flat of size  $\hat{y}$  at rent  $\hat{q}$ . Because a tenant is not entitled to the local cash transfer, from his budget constraint we have:  $\hat{x}^t = w^t - \hat{q}\hat{y}$ . The maximum utility that a public housing tenant derives from consuming the consumption good and public housing is

$$\hat{v}(\hat{q}, \hat{y}, w^t) \equiv u(\hat{x}^t, \hat{y}^t) \quad (5)$$

or, shorter,  $\hat{v}^t$ . Then a native  $k$ -household's maximum utility as public housing tenant is  $\hat{v}^t + I_i^k G$ .

Parameters  $\hat{y}$  and  $\hat{q}$  are determined outside the model. But of course they must be such that utility as public housing tenant is always higher than utility as private sector renter. So we assume that  $\hat{v}^t > \tilde{v}^t$ .

## 2.4 Benefits and Costs of FDI

Benefits from FDI occur as wages  $w^t$  rise in the event of FDI. We do not explicitly model the underlying production sector. Instead we simply stipulate the following link between FDI and the urban wage:

$$w^t = w + \delta^t \gamma^t \quad (6)$$

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<sup>9</sup>With  $G^t$  exogenous,  $u(x^t, y^t)$  not just is B-households' utility function. It also is a monotonous transformation of A-households' utility function.

<sup>10</sup>Subscripts denote partial derivatives.

Here  $w > 0$  is the wage in the absence of FDI;  $\gamma^t$ , with  $\gamma^t \geq 0$ , is local government's - costly - effort to please foreign investors ("FDI effort"). Whether increasing FDI effort translates into a higher wage depends on the value of the random variable  $\delta^t$ ,  $\delta^t \in \{0, 1\}$ . If  $\delta^t = 1$ , with probability  $p$ , ( $0 < p < 1$ ), a foreign investor applies to invest in city  $i$  ("FDI application"). If  $\delta^t = 0$ , with probability  $(1 - p)$ , no foreign investor applies.<sup>11</sup> From local government's perspective, only FDI effort  $\gamma^t$  is endogenous;  $w$  as well as  $\delta^t$  are exogenous.

Now, if either no foreign investor applies ( $\delta^t = 0$ ), or local government does not attempt to please foreign investors ( $\gamma^t = 0$ ), or both, then there will be no FDI, and, hence, no change in the urban wage. For FDI to take place there must be a joint effort by local government and the foreign investor. For later use we differentiate (6), i.e.,

$$dw^t = \delta^t d\gamma^t \quad (7)$$

Since the model's two periods are meant to capture the world before and after the advent of FDI, we assume that  $\delta^1 = 0$ . No foreign investor will apply in period 1:  $(dw^1/d\gamma^1) = \delta^1 = 0$ . FDI can only ever be an issue in period 2. Then  $(dw^2/d\gamma^2) = \delta^2 \geq 0$ .

Next we turn to the costs of FDI. We assume that FDI generates an externality which weakens A-households' attachment to city  $i$ 's local public good:

$$G^t = G(\delta^t \gamma^t) \quad (8)$$

where  $(G^t)' < 0$ .<sup>12</sup> Since  $\delta^1 = 0$ , home attachment in period 1 is  $G^1 = G(0) > 0$ . Note that home attachment would not deteriorate simply because an investor applies ( $\delta = 1$ ), or because local government is making an effort to attract FDI ( $\gamma \geq 0$ ). Rather, it takes both to actually make A's worse off.

## 2.5 Equilibrium

In initial *spatial equilibrium*, so we assume, there are immigrant B's living in  $i$ , but no native B's not living in  $i$ . Also we assume that in initial spatial equilibrium not all B's native to other cities are living in  $i$ . Then spatial equilibrium requires that in both periods utility for B's in  $i$  is the same as utility elsewhere  $\bar{v}$ :

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<sup>11</sup>Here  $p$  captures city  $i$ 's urban amenities other than  $\gamma$  attractive to a foreign investor.

<sup>12</sup>Primes denote derivatives.

$$\tilde{v}(q^t, w^t + \sigma^t) = \bar{v} \quad (9)$$

*Market equilibrium* requires that the regional housing market clear in both periods. Total available housing is  $T$ . Demand for public housing is  $\mu N \hat{y}$  and demand for private sector housing is  $[(1 - \mu)N + \bar{B}^t] \tilde{y}^t$ . Housing market equilibrium is where

$$T = \mu N \hat{y} + [(1 - \mu)N + \bar{B}^t] \tilde{y}^t \quad (10)$$

holds.

Equations (6), (9) and (10) determine  $w^t$ ,  $q^t$  and  $\bar{B}^t$ . Using (7), totally differentiating (9), and using Roy's theorem, gives

$$dq^t = \frac{1}{\tilde{y}^t} (\delta^t d\gamma^t + d\sigma^t) \quad (11)$$

Hence  $(dq^1/d\gamma^1) = 0$  whereas  $(dq^2/d\gamma^2) \geq 0$ . Next,  $(dq^1/d\sigma^1), (dq^2/d\sigma^2) > 0$ . Totally differentiating (10), and rearranging, gives:

$$d\bar{B} = -\frac{1}{\tilde{y}^t} \frac{1}{\tilde{y}^t} [(1 - \mu)N + \bar{B}^t] (\tilde{y}_w^t \tilde{y}^t + \tilde{y}_q^t) (\delta^t d\gamma^t + d\sigma^t) \quad (12)$$

Here  $(\tilde{y}_w^t \tilde{y}^t + \tilde{y}_q^t)$  is the derivative of a private sector renter's Hicksian demand for housing with respect to rent - which must be negative. Then, for later use, we may note that  $(d\bar{B}^1/d\gamma^1) = 0$ ,  $(d\bar{B}^2/d\gamma^2) \geq 0$  while  $(d\bar{B}^1/d\sigma^1), (d\bar{B}^2/d\sigma^2) > 0$ .

### 3. Public Housing and the Political Economy of FDI

Individual households do not act strategically. This we justify by pointing to two elements of the model. First, some households are completely mobile: B's always have utility  $\bar{v}$ , thanks to not being attached to any city in particular. For B's there simply is no need to look ahead. Second, we assume that those households whose utilities vary with the local equilibrium are represented by two players that actively pursue these households' respective interests. We assume that local government, as one player, acts on landlords' behalf;

and that an interest group, as the other player and described in more detail below, acts on behalf of vulnerable A's.<sup>13</sup> Local government and the interest group play a game that ultimately determines the level of inward FDI and the extent of local public housing.

The game consists of four stages. Stages 1 and 2 belong to the first period ("no foreign investor applies"); stages 3 and 4 to the second period ("a foreign investor may apply").

### 3.1 The Timing of Events

*First stage:* At the beginning of the first period *local government* decides on  $\mu$ ,  $\gamma^1$ , and  $\sigma^1$ , while taking into account that  $\delta^1 = 0$ . There are two important restrictions on the choice of  $\mu$ . First, local government's choice is limited to  $\mu \in \{0, 1\}$ . And second, local government's choice is "clay"; once  $\mu$  is chosen it is fixed for the remainder of the game. Hence in both periods there are  $\mu N$  natives in public housing as well as  $(1 - \mu)N$  natives living in the private rented sector. – Local government's choice of  $\gamma$  and  $\sigma$  is "putty". In period 2 local government may decide to revise  $\gamma^1$  and  $\sigma^1$  by choosing  $\gamma^2$  and  $\sigma^2$  instead.

For  $\delta^1 = 0$  and for chosen  $\gamma^1$  and  $\sigma^1$ , the urban wage is  $w^1 = w$  via (6). Local rent  $q^1$  is implicitly defined by  $\tilde{v}(q^1, w^1 + \sigma^1) = \bar{v}$  in (9). A-households' attachment to home is  $G^1$  as defined by (8). A native A's maximum utility in the private rented sector is  $\bar{v} + G^1$  while a native A's maximum utility as public housing tenant is  $\hat{v}^1 + G^1$ . A native B as public housing tenant has indirect utility  $\hat{v}^1$ .

*Second stage:* At the end of the first period a *local interest group* emerges. Its formation reflects the fact that A's in  $i$  have higher utility than what is necessary to induce them to stay in  $i$ . In other words, A's enjoy a *quasi-rent*.  $G$  alternatively may be referred to as the level of the local public good, A-households' home attachment, or A-households' quasi-rent. A's must be afraid of losing part, or even all, of this quasi-rent in the second period if FDI occurs. So the quasi-rent calls for protection. The interest group's *raison d'être* is to deliver this protection. We assume that the interest group's welfare equals the sum of all interest group members' utilities. Making use of the definitions of indirect utility and of the spatial equilibrium condition (9), interest group welfare in  $t$ ,  $\mathcal{A}^t$ , is

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<sup>13</sup>We assume away the pitfalls of collective action. Local government represents all landlords; the interest group represents all native A's.

$$\mathcal{A}^t \equiv AG^t + \mu A\hat{v}^t + (1 - \mu)A\bar{v} \quad (13)$$

The interest group has no influence on policy decisions in period 1 since period 1 is ending at the moment of the interest group's formation. But the interest group matters to policy in period 2. We assume that the interest group may require local government to keep interest group welfare in the second period  $\mathcal{A}^2$ , at, or above, the value  $\hat{\mathcal{A}}$ , where, however, this chosen value  $\hat{\mathcal{A}}$  must not exceed interest group welfare in period 1,  $\mathcal{A}^1$ :

$$\hat{\mathcal{A}} \in [0, \mathcal{A}^1] \quad (14)$$

By choosing  $\hat{\mathcal{A}} = \mathcal{A}^1$ , for example, the interest group could force local government to restrict its subsequent choice of  $\gamma^2$  and  $\sigma^2$  to values that actually improve upon, or to the very least maintain, current interest group welfare  $\mathcal{A}^1$ .<sup>14</sup>

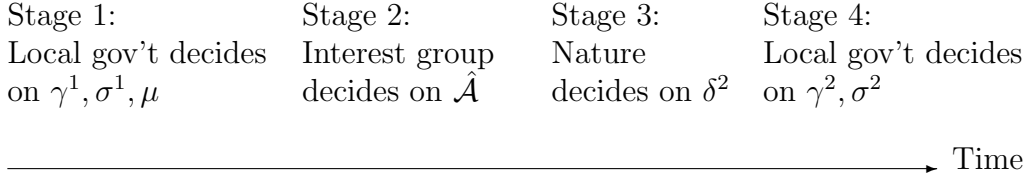
*Third stage:* At the beginning of the second period *nature* moves. In the previous period  $\delta^1 = 0$ . Now, with probability  $p$ , ( $0 < p < 1$ ),  $\delta^2 = 1$ ; with probability  $(1 - p)$ ,  $\delta^2 = 0$ . The parameter  $p$  is meant to reflect "all other determinants" of FDI other than this paper's conflict between local government and the interest group.

*Fourth stage:* *Local government* may revise its previous choices of "putty" variables, but given the interest group's and nature's previous moves. In particular, when choosing  $\gamma^2$  and  $\sigma^2$  local government must observe  $\mathcal{A}^2 \geq \hat{\mathcal{A}}$ . For given  $\delta^2$  and  $\gamma^2$ , the regional wage becomes  $w^2 = w + \delta^2\gamma^2$  via (6). A native A's home attachment becomes  $G^2$  as defined by (8). A native A's maximum utility in the private rented sector is  $\bar{v} + G^2$  while a native A's maximum utility as public housing tenant now is  $\hat{v}^2 + G^2$ . Finally, a native B as public housing tenant has indirect utility  $\hat{v}^2$ . - Figure 1 summarizes the timing of events.

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<sup>14</sup>In period 2 all that may ever happen is a *positive* shock. Then assuming that the interest group is indeed capable of enforcing the status quo via (14) should not be too restrictive.

Figure 1: The timing of events



### 3.2 Backward Induction

*Fourth stage:* At the final stage local government maximizes  $\mathcal{R}^2$ , as defined in (3), given its own decisions at the first stage, given the interest group's choice of  $\mathcal{A}^2$  at the second stage, and given  $\delta^2$  as determined at the third stage. Specifically, local government needs to solve

$$\begin{aligned} \max_{\gamma^2, \sigma^2} \quad & Tq^2 - \mu N \hat{y}(q^2 - \hat{q}) - \sigma^2 [(1 - \mu)N + \bar{B}^2] - K(\gamma^2) \quad \text{s.t.} \\ & \gamma^2 \geq 0; \quad \sigma^2 \geq 0; \quad -\hat{A} + AG^2 + \mu A \hat{v}^2 + (1 - \mu)A\bar{v} \geq 0 \end{aligned}$$

Written out in full, first order conditions are

$$(T - \mu N \hat{y}) \frac{dq^2}{d\gamma^2} - \sigma^2 \frac{d\bar{B}^2}{d\gamma^2} - \frac{dK}{d\gamma^2} + \lambda A \left[ \frac{dG^2}{d\gamma^2} + \mu \hat{v}_w^2 \delta^2 \right] \leq 0 \quad (15)$$

$$\gamma^2 \geq 0 \quad (16)$$

with respect to  $\gamma^2$ ,

$$(T - \mu N \hat{y}) \frac{dq^2}{d\sigma^2} - [(1 - \mu)N + \bar{B}^2] - \sigma^2 \frac{d\bar{B}^2}{d\sigma^2} \leq 0 \quad (17)$$

$$\sigma^2 \geq 0 \quad (18)$$

with respect to  $\sigma^2$ , and

$$-\hat{A} + AG^2 + \mu A \hat{v}^2 + (1 - \mu)A\bar{v} \geq 0 \quad (19)$$

$$\lambda \geq 0 \quad (20)$$

with respect to  $\lambda$ , where  $\lambda$  is the Lagrange-multiplier associated with the interest group constraint. Also, it is understood that conditions (15) and (16), conditions (17) and (18), as well as conditions (19) and (20) cannot be slack at the same time. Jointly, then, necessary conditions (15) through (20) determine  $\gamma^2$ ,  $\sigma^2$ , and  $\lambda$ .

Early on we are able to show that  $\sigma^2$  must be zero. First, because of (11), we can replace  $dq^2/d\sigma^2$  on the l.h.s. of (17) with  $(1/\tilde{y}^2)$ . Next, also using housing market equilibrium condition (10), we see that the l.h.s. of (17) reduces to  $(-\sigma^2)(d\bar{B}^2/d\sigma^2)$ . The latter expression is strictly negative as long as  $\sigma^2$  is larger than zero. By complementary slackness,  $\sigma^2$  must be zero. *In period 2, the optimal level of local government cash transfers to households in the private rented sector is zero.*

This is the result of the local government's informational and institutional constraints discussed above. Their joint effect is to force local government to extend any cash transfer scheme designed to compensate residents hurt by FDI to non-residents not hurt. In response, non-residents will immigrate to become eligible for "compensation" and drive up rents. They thereby offset any net income gain initiated by the cash transfer.

*Third stage:* As explained above, at the third stage nature determines whether a foreign investor applies to invest ( $\delta = 1$ ) or not ( $\delta = 0$ ). *Second stage:* At the second stage the interest group decides on  $\hat{\mathcal{A}} \in [0, \mathcal{A}^1]$ . Clearly, the interest group will never choose  $\hat{\mathcal{A}} < \mathcal{A}^1$ . To show this we address what could happen if it did. For example, assume that  $\hat{\mathcal{A}} \leq \mathcal{A}^2 \leq \mathcal{A}^1$  in the event that  $\delta = 1$  and  $\mathcal{A}^1 < \mathcal{A}^2$  in the event that  $\delta = 0$ . Then in the event that  $\delta = 1$  the interest group is worse off than it would be had it chosen  $\hat{\mathcal{A}} = \mathcal{A}^1$ . Furthermore, in the event that  $\delta = 0$  the interest group is never better off than it would be had it chosen  $\hat{\mathcal{A}} = \mathcal{A}^1$ . After all, imposing the non-binding restriction  $\hat{\mathcal{A}} = \mathcal{A}^1$  instead of  $\hat{\mathcal{A}} < \mathcal{A}^1$  would not have prevented the interest group from attaining  $\mathcal{A}^2 > \mathcal{A}^1$ , also. The interest group should choose  $\hat{\mathcal{A}} = \mathcal{A}^1$ .

The same result applies to the three other cases to be considered, too. Since the reasoning is very similar, we omit these. We conclude that, whatever nature's move, and in anticipation of local government behavior at the final stage, the interest group's optimal choice always is  $\hat{\mathcal{A}} = \mathcal{A}^1$ . Put differently, the interest group will never demand anything less than the *status quo*. No concessions will be made.

In what follows we drop (17) and (18), and simplify (15), by making use of  $\sigma^2 = 0$ . In (15), we substitute  $(\delta^2/\tilde{y}^2)$  for  $(dq^2/d\gamma^2)$  by using (11). Also we



make use of  $(dG^2/d\gamma^2) = (G^2)'\delta^2$ , via differentiating (8). In inequality (19) we replace  $\hat{A}$  by  $\mathcal{A}^1 = AG^1 + \mu A\hat{v}^1 + (1 - \mu)A\bar{v}$ . Finally we drop  $(1 - \mu)A\bar{v}$  from both sides of (19). Instead of (15) through (20) we now have (again we omit the corresponding conditions of complementary slackness):

$$(T - \mu N\hat{y})\frac{\delta^2}{\tilde{y}^2} - \frac{dK}{d\gamma^2} + \lambda A\delta^2 [(G^2)' + \mu\hat{v}_w^2] \leq 0 \quad (21)$$

$$\gamma^2 \geq 0 \quad (22)$$

$$G^2 + \mu\hat{v}^2 \geq G^1 + \mu\hat{v}^1 \quad (23)$$

$$\lambda \geq 0 \quad (24)$$

For later use we define  $(T - \mu N\hat{y})(\delta^2/\tilde{y}^2) - (dK/d\gamma^2)$  as FDI effort's net marginal benefit. – Conditions (21) through (24) are helpful in assessing  $\gamma^2$ . We look at the four scenarios that result from combining whether an investor applies or not with whether natives live in public housing or not.

*Case I:*  $\delta^2 = 0$  and  $\mu = 0$ . First, by (23), any  $\gamma^2$  will satisfy the interest group constraint. Because there is no foreign investor, and hence no FDI, no level of  $\gamma^2$  can be detrimental to A's. However, the l.h.s. of (21) reduces to  $-(dK/d\gamma^2)$ . Hence by complementary slackness we must have  $\gamma^2 = 0$ . Put differently, while natives would not be protected from FDI-induced rent rises this lack of protection, of course, is irrelevant since no foreign investor ever applies.

*Case II:*  $\delta^2 = 0$  and  $\mu = 1$ . Again, by (23), any  $\gamma^2$  will satisfy the interest group constraint. And the l.h.s. of (21) again reduces to  $-(dK/d\gamma^2)$ . By complementary slackness we must have  $\gamma^2 = 0$ . Economically speaking, public housing would shield all natives from any rise in rent. Nevertheless, given that no foreign investor applies local government will not want to invest into FDI effort, and hence will not need the interest group's approval, anyway.

*Case III:*  $\delta^2 = 1$  and  $\mu = 0$ . First, by (23), only  $\gamma^2$  with  $\gamma^2 \leq 0$  can satisfy the interest group constraint. This is because here the constraint becomes  $G^1 \leq G^2$  which, by  $G' < 0$ , implies  $\gamma^1\delta^1 \geq \gamma^2\delta^2 \Leftrightarrow 0 \geq \gamma^2$ . But by (22)  $\gamma^2 \geq 0$ . Hence  $\gamma^2 = 0$ . In effect, the constraint only allows to "choose" from a set with one element. On the l.h.s. of (21) net marginal benefit becomes

$(T/\tilde{y}^2) - (dK/d\gamma^2)$ . Since  $\gamma^2$  must be zero we need to distinguish between two subcases. Either net marginal benefit is negative. Then local government not just is not allowed to, but also does not want to, invest into FDI effort. Or, net marginal benefit is positive. This is the more interesting subcase. Then local government is not able to, while it does want to, invest into FDI effort. Economically speaking, even though a foreign investor applies local government cannot take advantage of it. For lack of an effective instrument of compensation, local government must turn away the foreign investor.

*Case IV:*  $\delta^2 = 1$  and  $\mu = 1$ . This is the only case where we cannot rule out  $\gamma^2 > 0$ ;  $\gamma^2 > 0$  may be consistent with (21) to (24). First note that the interest group constraint (23) may also be satisfied for  $\gamma^2 > 0$ . The reason is that FDI in combination with public housing increases tenants' wages without increasing tenants' rents. If the increase in real income  $\hat{v}^2 - \hat{v}^1$  exceeded, or equaled, the reduction in quasi-rent  $G^1 - G^2$ , then the l.h.s. of (23) could be greater than, or equal to, the r.h.s. of (23). In this situation A's, even though  $\gamma^2 > 0$ , would approve of local government's FDI effort. – By complementary slackness, having  $\gamma^2 > 0$  requires that (21) be satisfied with equality. If (21) is satisfied with equality, then  $\gamma^2 > 0$  indeed is a solution to conditions (21) through (24).

We will assume that this is the case. So in the presence of a foreign investor and of local public housing, investment into FDI effort makes local government better off while it does not make the interest group (or B's) worse off. Briefly, local government wants to host FDI, and the interest group wants to, too. From the city's perspective, hosting FDI is a Pareto-improvement in comparison to not hosting FDI.

We emphasize the importance of public housing for allowing FDI to happen. In our setup, public housing is not just one instrument that permits overcoming interest group resistance by sharing the benefits of FDI; rather, in our setup public housing is the *only* instrument that permits this. Following FDI, natives' wage will grow beyond  $w$ . In case III, this triggered immigration and a rise in rent. In case IV this still triggers immigration. However, now natives are sheltered from rising rent. Not just is  $\hat{q}$  smaller than  $q$ . Also,  $\hat{q}$  is *fixed*.

Using our previous results on  $\gamma^2$ , we can derive period 2 net revenue  $\mathcal{R}^2$  in each of all four cases. Note that since government decisions are largely similar, the model's period 2 variables can actually only take on two different sets of values. Either  $\gamma^2 = 0$  (cases I, II, and III). Then we will write this FDI effort and the resulting wage and rent in period 2 as  $\gamma^2 = \gamma_o (= 0)$ ,

$w^2 = w_\circ (= w)$  via (6), and  $q^2 = q_\circ$  via (9), respectively. Or,  $\gamma^2 > 0$  (case IV). Then we will write FDI effort and the resulting wage and rent in period 2 as  $\gamma^2 = \gamma_\bullet (> \gamma_\circ)$ ,  $w^2 = w_\bullet (> w_\circ)$  and  $q^2 = q_\bullet (> q_\circ)$ , respectively. Substituting these definitions into (3) gives net revenues for the four cases above as

$$\mathcal{R}_I^2 = Tq_\circ \quad \text{if } \delta^2 = 0, \mu = 0 \quad (25)$$

$$\mathcal{R}_{II}^2 = (T - N\hat{y})q_\circ + N\hat{y}\hat{q} \quad \text{if } \delta^2 = 0, \mu = 1 \quad (26)$$

$$\mathcal{R}_{III}^2 = Tq_\circ \quad \text{if } \delta^2 = 1, \mu = 0 \quad (27)$$

$$\mathcal{R}_{IV}^2 = (T - N\hat{y})q_\bullet + N\hat{y}\hat{q} - K(\gamma_\bullet) \quad \text{if } \delta^2 = 1, \mu = 1 \quad (28)$$

where subscripts  $I, II$ , etc. indicate the corresponding case. We have  $\mathcal{R}_I^2 = \mathcal{R}_{III}^2$  because, irrespective of whether or not an investor applies, no FDI will take place if natives are not protected through public housing, and because in both cases there are no costs from public housing. Next,  $\mathcal{R}_{II}^2 < \mathcal{R}_I^2$ . If no investor turns up, having invested in public housing is worse than not having invested. Finally,  $\mathcal{R}_{II}^2 < \mathcal{R}_{IV}^2$ . Given investment into public housing, local government would always have the option of keeping FDI effort at  $\gamma_\circ$  if a foreign investor applies. Not having done so by choosing  $\gamma_\bullet > \gamma_\circ$  shows, by revealed preference, that net revenue must be larger if FDI effort, and, hence, FDI, is positive than if FDI effort, and, hence, FDI, is zero.

Comparing  $\mathcal{R}_I^2$  with  $\mathcal{R}_{IV}^2$  is not as straightforward. On the one hand, local government earns a higher rent in case IV than in case I:  $q_\bullet > q_\circ$ . On the other hand, then there is less land to earn rent from:  $T - N\hat{y} < T$ . And there also is the extra cost of FDI effort:  $K(\gamma_\bullet) > 0$ .

From (25) to (28) we find *expected* second period net revenue to be

$$E\mathcal{R}^2 = \begin{cases} \mathcal{R}_I^2 & \text{if } \mu = 0 \\ p\mathcal{R}_{IV}^2 + (1-p)\mathcal{R}_{II}^2 & \text{if } \mu = 1 \end{cases} \quad (29)$$

As will be seen below, investing into public housing in period 1 only generates extra costs, but no benefit, in period 1. Since having invested into public housing causes extra period 2 losses in the event that no foreign investor applies ( $\mathcal{R}_{II}^2 < \mathcal{R}_I^2$ ), at least we must have that having invested into public housing causes an extra period 2 benefit in the event that a foreign investor does apply. Hence we assume that  $\mathcal{R}_{IV}^2 > \mathcal{R}_I^2$ . This could be interpreted as an assumption on the size of the wage gain ( $w_\bullet - w_\circ$ ) generated by, and

on the size of effort costs  $K(\gamma_\bullet)$  involved in, FDI. The wage gain should be large; effort costs should be small. Clearly, urban economies with "small" wage gains in the event of FDI and "large" effort costs will never invest into public housing.

*First stage:* At the first stage local government maximizes *net revenue*  $\mathcal{R}$ , i.e., the sum of net revenue in period 1  $\mathcal{R}^1$  and expected net revenue in period 2  $E\mathcal{R}^2$ .<sup>15</sup> So local government solves<sup>16</sup>

$$\begin{aligned} \max_{\gamma^1, \sigma^1, \mu} \quad & \mathcal{R} \equiv \mathcal{R}^1 + E\mathcal{R}^2 \quad \text{s.t.} \\ & \gamma^1 \geq 0; \sigma^1 \geq 0; \mu \in \{0, 1\} \end{aligned} \quad (30)$$

Note that only public housing  $\mu$ , but neither period 1's FDI effort  $\gamma^1$  nor period 1's cash transfer  $\sigma^1$  enter (21) through (24). Hence, of local government's three first period/first stage decision variables  $\gamma^1$ ,  $\sigma^1$  and  $\mu$ , it is only  $\mu$  that can ever affect  $\gamma^2$  and, hence,  $E\mathcal{R}^2$ . Two sets of necessary conditions are (where we employ the definition of  $\mathcal{R}^1$  from (3))

$$(T - \mu N \hat{y}) \frac{dq^1}{d\gamma^1} - \sigma^1 \frac{d\bar{B}^1}{d\gamma^1} - \frac{dK}{d\gamma^1} \leq 0 \quad (31)$$

$$\gamma^1 \geq 0 \quad (32)$$

with respect to  $\gamma^1$ , and

$$(T - \mu N \hat{y}) \frac{dq^1}{d\sigma^1} - [(1 - \mu)N + \bar{B}^1] - \sigma^1 \frac{d\bar{B}^1}{d\sigma^1} \leq 0 \quad (33)$$

$$\sigma^1 \geq 0 \quad (34)$$

with respect to  $\sigma^1$ .

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<sup>15</sup>We ignore the interest rate for simplicity. Including the interest rate does not add anything substantial except the obvious insight that a larger interest rate leads to stronger discounting of future revenues and, hence, to a stronger emphasis on first period losses from public housing.

<sup>16</sup>We restrict local government's choice of  $\mu$  to either zero or one. This is because without additional assumptions we cannot be sure about the behavior of the value function  $\mathcal{R}^2$  as  $\mu$  varies between zero and one.

Because of (10), the l.h.s. of (33) reduces to  $(-\sigma^1)(d\bar{B}^1/d\sigma^1) < 0$ . Hence  $\sigma^1 = 0$  by complementary slackness. Next, since  $\delta^1 = 0$  by assumption,  $(dq^1/d\gamma^1) = 0$ . Then the l.h.s. of (31) reduces to  $(-dK/d\gamma^1)$ . Hence,  $\gamma^1 = 0$  by complementary slackness, or, put differently,  $\gamma^1 = \gamma_\circ$ . Next, inserting  $\delta^1 = 0$  and  $\gamma_1 = 0$  into the wage equation (6) gives  $w^1 = w = w_\circ$ . Inserting  $w^1 = w_\circ$  and  $\sigma^1 = 0$  into the spatial equilibrium condition (9) shows that:  $q^1 = q_\circ$ . But then, finally, using (3), (25), and (26), we have

$$\mathcal{R}^1 = \begin{cases} \mathcal{R}_I^2 & \text{if } \mu = 0 \\ \mathcal{R}_{II}^2 & \text{if } \mu = 1 \end{cases} \quad (35)$$

From (35) we see that public housing never pays in period 1. From (29) we see that public housing might pay in period 2. Joining (35) and (29), at last, gives:

$$\mathcal{R} = \begin{cases} 2\mathcal{R}_I^2 & \text{if } \mu = 0 \\ 2\mathcal{R}_{II}^2 + p(\mathcal{R}_{IV}^2 - \mathcal{R}_{II}^2) & \text{if } \mu = 1 \end{cases} \quad (36)$$

Local government bases its choice of  $\mu \in \{0, 1\}$  on (36). Rewriting (36) by using definitions (25), (26), and (28) gives the model's *central condition*: At the beginning of period 1 local government will invest into public housing iff

$$p[(T - N\hat{y})(q_\bullet - q_\circ) - K(\gamma_\bullet)] > 2N\hat{y}(q_\circ - \hat{q}) \quad (37)$$

First, choosing  $\mu = 1$  is more likely the larger is  $p$ , i.e., the more attractive a city is to foreign investors in all respects other than the conflict between landlords and A's modeled in this paper. Second, choosing  $\mu = 1$  is more likely the larger is  $T$  or the smaller is  $N\hat{y}$ , i.e., the larger is housing occupied by immigrant B's in initial equilibrium. FDI-induced wage rises for immigrant B's simply translate into rising revenue for landlords without spoiling anybody's quasirent. Local government will find it more attractive to protect natives through public housing if natives are a smaller fraction of total city population. Third, choosing  $\mu = 1$  is more likely the larger is the rent gain from FDI, i.e.,  $(q_\bullet - q_\circ)$ , and the lower are the costs of FDI effort, i.e.,  $K(\gamma_\bullet)$ . And fourth, choosing  $\mu = 1$  is more likely, the less generous is public housing, i.e., the smaller is  $(q_\circ - \hat{q})$ .

## 4. Two Case Studies

In the quote given in the introduction, the World Bank is not explicit on *why* public housing was so strongly preferred over other types of transfers. But the quote points into a similar direction as this paper's model: From the World Bank's perspective, Hong Kong's and Singapore's investment into public housing had a *strategic* component. – The following two short sections give a brief overview over similarities between the model on the one hand and the two city states on the other hand.

### 4.1 Hong Kong

Over the last three decades or so, Hong Kong, in per capita terms, has been one of the largest recipients of FDI in the world. In five important ways does Hong Kong resemble the model economy. First, Hong Kong is close to some of the most populous, and poorer, areas in mainland China. Any further increase in income must trigger further (illegal) immigration. Hong Kong indeed is a city open to (illegal) immigration. Second, up to 1999 land ownership in Hong Kong was very simple, as documented by Ho (1992): All land was owned by the British Crown, and all rent accrued to the Hong Kong government. In Hong Kong, more than anywhere else, local government should represent the interests of the landlords.

Third, a large share of Hong Kong households were (and are) public housing tenants. Following the Hong Kong Housing Authority (1984), in 1984, for instance, 45% of the Hong Kong population were living in public housing. But fourth, becoming public housing tenant is more difficult for immigrants than for natives. According to the Hong Kong Housing Authority (1998, p. 26), in 1998 "the average waiting time for a public rental flat is six and a half years". But, depending on the specific public housing program, to become eligible for public housing households not just simply needed to wait. Also, households had to have been Hong Kong residents for at least 7, if not 10, years. Hence, there is a residence requirement that resembles the model's restriction of public housing to native residents.

The political cost of outright denial of a cash transfer to immigrants from China must be prohibitive: Immigrants speak the same language, have the same ethnic background, may even be related to natives, etc. In contrast, the political cost of denying immigrants immediate access to public housing must be much lower, given that public housing not just discriminates against immigrants but against natives still on the waiting list, too.

Fifth, finally, once households move into public housing, they enjoy amazingly

strong property rights. (These, to be sure, are currently under pressure, see Hong Kong Housing Authority (1998).) In the past, tenants who benefitted from rising wages did not have to leave public housing: "... having become tenants, people can continue to work hard, prosper and be sure that they will be allowed to remain in public housing". Moreover, ... "one child of a tenant ... [could] succeed the tenancy under certain circumstances" (Hong Kong Housing Authority 1984, p. 11, and Wong/Liu (1988)).

## 4.2 Singapore

Singapore, too, has been one of the largest per capita recipients of FDI over the last three decades. We run through the apparent similarities between Singapore's economy and the model. First, Singapore must have been attractive to migrants from its immediate, and less rich, neighbors, Malaysia and Indonesia. Singapore should be classified as a small open city, too. Second, according to Tremewan (1998), "approximately 75 per cent of the land is under some form of government ownership and government has the power to acquire the remainder compulsorily" (p. 77). Third, also according to Tremewan (1998), over 86 percent of Singaporeans are public housing tenants. Moreover, and fourth, "Foreign workers on work permits are excluded from access to public housing except in the minority of ... cases where employers rent flats on their behalf for limited periods ... Consumption of public housing and the purchase of flats is restricted to citizens and permanent residents..." (p. 91).<sup>17</sup>

## 5. Conclusions

The paper's model suggests that more public housing inspires more inward foreign direct investment. More precisely, if natives are public housing tenants, inward FDI becomes more likely.

We treat FDI as any other reform. There are households who lose from FDI and there are households who gain from FDI. To win support from those who lose, a compensation scheme may have to be offered. In principle, compensation could be in cash or in-kind. We argue that public housing has two crucial

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<sup>17</sup>Weder/Brunetti (2000) provide a somewhat different explanation of Hong Kong's and Singapore's successes. In their view, these city states had "an exceptionally good institutional framework for doing business". Seen from this paper's perspective, the quality of the framework for doing business could have been high because public housing permitted a large fraction of natives to benefit from the FDI driven boom. These households would not have participated in "social unrest", thereby producing Weder/Brunetti's "good framework for doing business".

advantages over an equivalent cash transfer. First, due to restrictions on local government's information and autonomy, access to the cash transfer has to be extended to non-residents while access to public housing does not have to be extended. Public housing permits subtle discrimination against non-residents. Next, public housing is much like a *land reform*: Public housing transfers part of the property rights of housing ownership to public housing tenants. Tenants can benefit from an FDI induced wage rise without fear of suffering from the wage rise-induced rent rise. This benefit, in fact, increases as the urban rent increases.

Now, if public housing appeases losers from FDI, local government may be tempted to invest into public housing in order to make FDI more palatable. So the paper's model also suggests that public housing itself is endogenous. We find that local government will be inclined to invest into public housing if the probability of a foreign investor applying is large, if the potential benefits from FDI are large, if the share of potential losers from FDI is small (though still powerful), and if public housing is not too costly.

We emphasize that local government may choose to invest into public housing even though landlords are not altruistic, even though public housing offers no immediate first period benefit, and even though public housing is costly in two ways. First, public housing is inefficient in the sense that private sector renters would be prepared to pay less for public housing than what it costs to provide public housing. And second, not just native losers from FDI get to benefit from public housing. Natives unaffected by FDI – because indistinguishable from native losers – get to benefit from public housing, too.

Offering public housing to natives is a strategic move but only if natives believe that public housing rent will not rise with market rent, and that public housing tenants do not get evicted as their nominal income rises. So we have implicitly assumed that protection via public housing is credible. Otherwise, however, this paper's emphasis is not on lack of credibility of compensation (as in, say, Dixit/Londregan (1995)), nor on lack of certainty (as in Rodrik/Fernandez (1991)), but on lack of feasibility. In the small open city, compensation via cash transfers simply is not feasible – while compensation via public housing is.

We conclude by pointing to one important similarity between this paper and Alesina/Rodrik (1994), as well as to one important difference. In Alesina/Rodrik (1994), it is equality in a country's land ownership and in other productive resources that encourages subsequent country growth. Following Alesina/Rodrik, "distributive struggles harmful to growth are more likely



to take place when resources are distributed unevenly” (p. 467). This idea, of course, is at the heart of this paper, too. If there is no public housing, i.e., if renter-households do not benefit at all from FDI, they will (and in this paper’s model: can) always block FDI. But we also point to the central difference between Alesina/Rodrik (1994) and this paper – besides the fact that Alesina/Rodrik is on countries, while this paper is on cities. In Alesina/Rodrik, ownership of productive resources “is predetermined and remains constant” (p. 485). In this paper, in contrast, property rights are subject to change. The more harmful the distributional struggles ahead appear, the more attractive landlord run local government will find voluntarily sharing housing ownership via public housing.

## References

- Aaron, H. and G. Furstenberg** (1971) "The Inefficiency of Transfers in Kind: the Case of Housing Assistance", in: *Western Economic Journal*, Vol. 9: 184-191.
- Alesina, A. and D. Rodrik** (1994) "Distributive Politics and Economic Growth", in: *Quarterly Journal of Economics*, Vol. 109: 465-490.
- Bearse, P. , G. Glomm, and E. Janeba** (2000) "Why Poor Countries Rely Mostly on Redistribution In-Kind", in: *Journal of Public Economics*, Vol. 75: 463-481.
- Dixit, A. and J. Londregan** (1995) "Redistributive Politics and Economic Efficiency", in: *American Political Science Review*, Vol. 89, No. 4: 856-66.
- Crémer, H. et al.** (1996) "Mobility and Redistribution: A Survey", in: *Public Finance*, Vol. 51, No. 3: 325-352.
- Fernandez, R. and D. Rodrik** (1991) "Status Quo Bias in the Presence of Individual-Specific-Uncertainty", in: *American Economic Review*, Vol. 81, No. 5: 1146-55.
- Figlio, D. and Blonigen, B.** "The Effects of Direct Foreign Investment on Local Communities", *Journal of Urban Economics*, Vol. 48, No. 2: 338-63.
- Guimaraes, P., O. Figueiredo, and D. Woodward** (2000) "Agglomeration and the Location of Foreign Direct Investment in Portugal", in: *Journal of Urban Economics*, Vol. 47, No. 1: 115-135.
- Hong Kong Housing Authority** (1984) *A Review of Public Housing Allocation Policies*, at: <http://www.cityu.edu.hk/cityu/about/hkhousing.htm>
- Hong Kong Housing Authority** (1998) *Homes for Hong Kong People into the 21st Century. A White Paper on Long Term Housing Strategy in Hong Kong*, at: <http://www.cityu.edu.hk/cityu/about/hkhousing.htm>
- Ho, W.** (1998) "Housing Conditions and Affordability in Hong Kong", in: *Review of Urban and Regional Development Studies*, Vol. 10, No. 2: 157-174.

- Ho, P.** (1992) "A Ricardian Interpretation of the Provision of Public Housing Services in Hong Kong", in: *Cambridge Journal of Economics*, Vol. 16: 207-225.
- Janeba, E.** (2001) *Global Corporations and Local Politics: A Theory of Voter Backlash*, NBER Working Paper 8254.
- Mas-Colell, A., M. Whinston, and J. Green** (1995) *Microeconomic Theory*, New York: Oxford University Press.
- Mansoorian, A. and G. Myers** (1997) "On the Consequences of Government Objectives for Economies with Mobile Populations", in: *Journal of Public Economics*, Vol. 63, No. 2: 265-81.
- Mody, A. and K. Srinivasan** (1998) "Japanese and U.S. Firms as Foreign Investors: Do They March to the Same Tune?", in: *Canadian Journal of Economics*, Vol. 31, No. 4: 778-99.
- Murray, M.** (1975) "The Distribution of Tenant Benefits in Public Housing", in: *Econometrica*, Vol. 43, No. 4: 771-788.
- Olsen, E. and D. Barton** (1983) "The Benefits and Costs of Public Housing in New York City", in: *Journal of Public Economics*, Vol. 20: 299-322.
- Painter, G.** (1997) "Does Variation in Public Housing Waiting Lists Induce Intra-Urban Mobility?", in: *Journal of Housing Economics*, Vol. 6: 248-276.
- Rosen, H.** "Housing Subsidies: Effects on Housing Decisions, Efficiency, and Equity", in: Auerbach, A. and M. Feldstein (eds.), *Handbook of Public Economics*, Vol. 1: 375-420.
- Sandmo, A. and D. Wildasin** (1999) "Taxation, Migration, and Pollution", in: *International Tax and Public Finance*, Vol. 6: 39-59.
- Sinn, H.-W.** (2002) "EU Enlargement and the Future of the Welfare State", in: *Scottish Journal of Political Economy*, Vol. 49: 104-15.
- Tremewan, Ch.** (1998) "Welfare and Governance: Public Housing under Singapore's Party State", in: R. Goodman, G. White and H. Kwon (eds.), *The East Asian Welfare Model: Welfare Orientalism and the State*, London: Routledge: 77-105.

- Weder, B. and A. Brunetti** (2000) "Another Tale of Two Cities: A Note on Institutions in Hong Kong and Singapore", in: *Journal of Institutional and Theoretical Economics*, Vol. 156, No. 2:313-24.
- Wildasin, D.** (1987) "Theoretical Analysis of Local Public Economics", in: Mills, E. (ed.), *Handbook of Regional and Urban Economics*, Vol. 2, Amsterdam, North-Holland: 1131-78.
- Wildasin, D.** (1991) "Income Redistribution in a Common Labor Market", in: *American Economic Review*, Vol. 81.4: 757-774.
- Wong, Y.-Ch. and P.-W. Liu** (1988) "The Distribution of Benefits among Public Housing Tenants in Hong Kong and Related Policy Issues", in: *Journal of Urban Economics*, Vol. 23: 1-20.
- World Bank** (1993) *The East Asian Miracle. Economic Growth and Public Policy*, Oxford University Press.