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PEOPLE, PLACES AND PUBLIC POLICY: SOME SIMPLE WELFARE ECONOMICS OF LOCAL ECONOMIC DEVELOPMENT PROGRAMS

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ABSTRACT

Most countries exhibit large and persistent geographical differences in wages, income and unemployment rates. A growing class of "place based" policies attempt to address these differences through public investments and subsidies that target disadvantaged neighborhoods, cities or regions. Place based policies have the potential to profoundly affect the location of economic activity, along with the wages, employment, and industry mix of communities. These programs are widespread in the U.S. and throughout the world, but have only recently been studied closely by economists. We consider the following questions: Who benefits from place based interventions? Do the national benefits outweigh the costs? What sorts of interventions are most likely to be effective?To study these questions, we develop a simple spatial equilibrium model designed to characterize the welfare effects of place based policies on the local and the national economy. Using this model, we critically evaluate the economic rationales for place based policies and assess the latest evidence on their effects. We conclude with some lessons for policy and directions for future research.

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1 Introduction

Economists have long been fascinated by the vast international differences in economic development that characterize the modern world. Yet even within the wealthiest countries, income and living conditions vary tremendously across regions, cities, and neighborhoods. For example, in 2009 the average hourly wage of a worker in Stamford, CT was twice that of a worker with the same education in Jacksonville, NC (Moretti, 2011). Within-country heterogeneity in unemployment rates can be even more pronounced. For example, the 2009 unemployment rate in Flint, MI was almost six times higher than the corresponding rate in Iowa City, IA (Kline and Moretti, 2013). These geographical differences in labor market outcomes are persistent across decades (Blanchard and Katz, 1992; Barro and Sala-i-Martin, 1992) and, strikingly, even across generations (Chetty et al., 2013).

As Robert Lucas (1988) famously remarked about international differences in economic development "I do not see how one can look at figures like these without seeing them as representing *possibilities*." Many governments, it seems, share this perspective, as spatially targeted development programs are quite common. Specifically, many countries have instituted "place based" economic development policies aimed at fostering economic growth in lagging regions and reducing the extent of spatial inequality within their borders. Such programs have become an important form of government intervention with the potential to profoundly affect the location of economic activity, along with the wages, employment, and industry mix of communities and regions.

Place based policies raise a number of interesting questions: Who benefits from place based interventions? Do the national benefits outweigh the costs? What sorts of interventions are most likely to be effective? To study these questions, this paper develops a simple theoretical framework that clarifies the effect of place based programs on the welfare of residents in the target locality and the rest of the nation. We use this model to critically evaluate the economic rationales for place based development policies and to assess the latest empirical evidence on their effects. We do not aspire to provide a comprehensive survey of all the papers in the literature, nor a comprehensive taxonomy of all place based policies.[1] Our discussion focuses on the interplay between theory and evidence and the need for future policy relevant research integrating the two.

What are Place Based Policies? Most government programs have the goal of providing income or services to particular groups of individuals. Welfare programs, for instance, transfer resources from taxpayers to a population of eligible low income households. Such programs can be said to be "person based" in that government treatment of entities depends

[1] Bartik (1991, 2002), Papke (1993, 1994), Glaeser (2001), and Glaeser and Gottleib (2008) provide in depth discussions of the institutional details and economics of the major U.S. place based policies of the 20th century.

upon their individual (or household) characteristics such as income or employment status. Place based policies, by contrast, explicitly target geographic areas for some form of special treatment, be it tax subsidies, public investments, or special rules and regulations.

Attempts to target resources towards particular areas or regions date back to antiquity – it is well known for example that taxes were used to subsidize the citizens of Rome at the expense of the rest of the Empire (Rostovtzeff, 1929). However it is only more recently that national governments have sought to encourage economic development in lagging regions, cities, or neighborhoods with explicit place based development programs.

The 20th century saw the birth of several large scale programs targeting underdeveloped regions and neighborhoods. A prominent example in the U.S. is the Tennessee Valley Authority, an ambitious federal program conceived as part of the New Deal that consisted of massive public infrastructure investments in roads and electricity designed to modernize a region which, at the time, was one of most underdeveloped in the country.

More recently, initiatives subsidizing declining cities and neighborhoods have grown popular. One of the most heavily studied are state "Enterprise Zones." These programs originated in the U.K. during the Thatcher administration as a way of revitalizing declining urban industrial neighborhoods through tax abatements and reductions in regulation (Rubin and Richards, 1992). Shortly afterwards, many U.S. states adopted similar programs offering investment and wage subsidies for firms locating within Zone boundaries. California, for instance, has 42 Enterprise Zones, covering most major cities in the state along with a few rural areas. Similar neighborhood level programs are operated by the federal government. The "Empowerment Zone" and "Renewal Community" programs, for example, offer subsidies to firms with the goal of revitalizing distressed neighborhoods. Federal neighborhood based programs have expanded over time: by 2003 more than 60 urban communities had federal zones of some sort (see GAO (2004) for details).

Although lack of a systematic national database makes it difficult to know exactly how much is spent annually on spatially targeted economic development programs across all levels of government, the sums are clearly substantial, particularly when state programs are included. The U.S. federal government spends at least $15 billion per year on spatially targeted development activities (GAO, 2012). In addition, state and local governments are estimated to spend $80 billion per year on incentives designed to attract outside investment and to reshape the location of activity within their jurisdiction (Story, 2012; Story, Fehr, and Watkins, 2012). This $95 billion in total expenditures amounts to roughly three times the outlays for Unemployment Insurance in a typical non-recession year (CBO, 2013) or, equivalently, three times the outlays for the Temporary Assistance for Needy Families program (Office of Family Assistance, 2013).

In a country where industrial policy and government attempts to "pick winners" are usually frowned upon, location-based incentives have become a popular de facto industrial policy, embraced with equal enthusiasm by blue and red state governors and mayors. Indeed, it is rare for employers to open large new facilities in the United States today without

receiving some type of subsidy on the part of state and local governments.

Table 1 shows data from Story, Fehr, and Watkins (2012) on the accounting value of subsidies provided by state and local governments in a typical year, by state. The top three states are Texas ($19.1 billion per year), Michigan ($6.65 billion per year) and Pennsylvania ($4.84 billion per year).[2] Recent examples include: $102 million in state incentives to Panasonic in 2011 to move its North American headquarters to Newark, along with an additional $4 million in tax breaks from the city; $307 million to Ford from the state of Kentucky in 2007 and 2008 in exchange for keeping its two plants in Louisville and expanding them; and $232 million to Samsung in 2011 from the state of Texas to locate its latest wafer fabrication facility in Austin (Bruns, 2006).

Place based policies are arguably even more prevalent in Europe. The European Union Regional Development Fund, for example, uses taxpayer money to fund generous business subsidies and public investments in regions with low nominal income and high unemployment. For the period 2007-2013, the fund amounts to 49 billion Euros per year (European Commission, 2013), or roughly four times the total amount spent by the U.S. federal government.[3]

National governments in Europe have also eagerly embraced these policies. Since the 1970's, the main business support scheme in the U.K. – the Regional Selective Assistance – has provided discretionary grants to firms in disadvantaged regions, defined as regions with low levels of per capita GDP and high unemployment (Crisculo et al. 2012). Italy has long provided regional transfers that single out "distressed" regions, especially in the South, for special infrastructure investments and, more recently, for hiring incentives and other labor market subsidies (See for example Deidda et al, 2012). Sweden, France and Germany have similar programs (Marx, 2001). Interestingly, while the European Union legislation generally prohibits state aid, it makes explicit exceptions for place based policies that target "deprived" regions.[4]

[2]Common examples of state incentives include direct subsidies and/or tax incentives, subsidized loans, hiring subsidies, industrial parks, technology transfer programs, export assistance and export financing, the provision of infrastructure, workforce training, subsidies to higher education and area marketing. This spending is often undertaken in cooperation between state and local governments. In most cases, the state government provides the bulk of the subsidies for plant location deals. See Story, Fehr, and Watkins (2012), Greenstone and Moretti (2004) and issues of Site Selection Magazine for additional examples. Some of the state programs have as their stated goal the support of industries, not locations. However in most cases these programs are also implicitly targeting locations because industries tend to be geographically clustered. For example, California spends $191 million on subsidies to the film industry. While the program does not explicitly single out a specific location, the bulk of the money is obviously intended to benefit the movie industry in Los Angeles.

[3]The stated goals of the Fund are (i) to promote economic convergence across EU regions; (ii) to increase regional competitiveness and employment; and (iii) to foster "territorial cooperation" (European Commission, 2013).

[4]In particular, Article 87 of the Treaty of Amsterdam allows for state aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment

Place based development policies are also popular in Asia. A well known example is the Chinese system of Special Economic Zones, which provide strengthened property rights and incentivize foreign direct investment in selected areas (Wang, 2013). Other examples include programs adopted by the governments of Japan, Korea and Taiwan to subsidize investment in computers, semi-conductors and biotechnology (Deloitte, 2012).

What is the Economic Rationale for Spatial Targeting? While place based development policies are pervasive, their economic rationales are often misunderstood. Many such programs list job creation for local residents as a primary objective. Following suit, a large academic literature seeks to estimate the local employment effects of such policies, usually with the goal of computing the number of jobs created per dollar spent. While this is perhaps useful for assessing whether program objectives were met, such exercises do not speak directly to the welfare consequences of these policies.

As with any government intervention, there are two broad normative criteria – equity and efficiency – that may justify place based policies. Equity rationales are popular among policymakers: by subsidizing disadvantaged areas, governments hope to help the disadvantaged residents of those areas. In the face of large and persistent differences in labor market outcomes across cities and regions, such arguments often resonate with the public.

However, economists have traditionally been skeptical of equity based arguments, as location is being used to serve a fundamentally person based motive: subsidizing poor households.[5] Such a goal could be achieved more directly by making the tax system more progressive or strengthening means tested transfer programs. Furthermore, spatial targeting might bring with it a number of unintended consequences owing to worker and firm mobility.

Indeed, standard spatial equilibrium models predict that in a world where workers are perfectly mobile and housing supply is completely inelastic, the entire benefit of location-based subsidies will be capitalized into land rents. In such a scenario, location-based programs intended to help poor communities will have limited effect on the wellbeing of local residents, simply amounting to a transfer of wealth to landowners in the targeted areas. If workers are less mobile, place based redistributive policies can affect the utility of inframarginal workers. But in the absence of perfect residential segregation by income, targeting transfers based upon income or demographic characteristics remains a more direct, and potentially more efficient, way to help those in need.

Most place based programs also have an efficiency rationale stemming from attempts to remedy important localized market failures. For instance, the Tennessee Valley Authority funded a series of large investments in transportation infrastructure that substantially raised

(Crisculo et al. 2012).

[5]Glaeser and Gottleib (2008) exemplify this view, concluding that "the rationale for spending federal dollars to try to encourage less advantaged people to stay in economically weak places is itself extremely weak."

regional productivity and would be difficult for the private sector to provide on its own. Likewise, the U.K. system of Enterprise Zones was originally intended to offset the regulatory and tax burdens associated with urban development (Rubin and Richards, 1992). There are (at least) five broad sorts of market imperfections that can potentially justify place based development policies:

1. **Public Goods**: Public amenities (e.g. public safety) and productive public goods (e.g. roads) are likely to be under-provided by the private sector.

2. **Agglomeration Economies**: Spatial proximity among firms and workers may generate productivity spillovers. Likewise, proximity among consumers may affect the supply (or quality) of local amenities.

3. **Labor Market Frictions / Rigidities**: Labor market institutions and bargaining behavior may lead the unemployment rate in a community to be too high.

4. **Missing Insurance / Credit Constraints**: Residents cannot insure themselves against local shocks which may prevent them from smoothing consumption.

5. **Pre-Existing Distortions**: Many government interventions that are ostensibly person based (e.g. income taxation, the minimum wage) generate spatially biased distortions.

To the extent that these market failures are localized, spatially targeted government intervention has the potential to improve efficiency. For example, if attracting new firms to an area tends to generate productivity spillovers that benefit incumbent firms (e.g. as in Greenstone, Hornbeck and Moretti, 2009) then subsidies for new firms can in principle raise welfare by internalizing the productive externality. However, local policies aimed at addressing these market imperfections may have unintended consequences of their own. For example, it is possible that subsidizing agglomeration economies in a region diverts resources from other areas, leading to a net loss in aggregate productivity. Thus, equity-efficiency tradeoffs typically remain when local market imperfections are present, albeit in a somewhat modified form.

The next section introduces a simple spatial equilibrium model that formally illustrates the key factors governing the incidence and efficiency of place based policies with complete markets. Our discussion emphasizes the twin roles of worker heterogeneity and housing supply in generating, and altering the distribution of, consumer and producer surplus in the economy. Then, in Section 3, we consider in detail how the equity-efficiency tradeoff is altered by each of our broad classes of market imperfections. Section 4 concludes with lessons for policy.

2 Welfare Effects of Place-Based Policies When Markets are Complete

In this section we develop a simple spatial equilibrium framework that is useful for understanding the effects of place based policies on national and local welfare in the *absence* of market imperfections. This model illustrates the essential equity-efficiency tradeoffs generated by spatial targeting in the presence of worker mobility. In Section 3 we study how our conclusions change when imperfections of various sorts are added.

In our model, the place based policy provides a subsidy to firms in the targeted city. Specifically, we focus on the case of subsidies to the firm's wage bill – a common policy employed, for example, by many state Enterprise Zones. Our qualitative results can be shown to extend to other subsidies designed to raise local labor demand, including subsidies to the private cost of capital.[6] In Section 3, we also consider "amenity-building" investments predicated on efficient production of local public goods.

In all cases, we are interested in understanding the policy's equilibrium effects in the presence of worker and firm mobility. As we shall see, our conclusions are governed in large part by the degree of worker mobility and the elasticity of housing supply. We conclude this section by discussing the empirical evidence on the effects of two prominent place based policies and the links to our welfare theoretic framework.

2.1 Assumptions

We work with a two city example to illustrate the basic issues involved with the minimum level of notational complexity. Workers can move and are free to reside and work in either city a or city b.[7] There is a continuum of workers of measure one, each of whom inelastically supplies a unit of labor and rents a unit of housing.[8] Because leisure and housing are demanded inelastically, we employ a simple linear specification for utility. Workers' indirect utility in a location depends on nominal wages, the cost of housing, taxes, and local amenities. Specifically, the indirect utility of worker i in city c is:

$$U_{ic} = w_c - r_c + A_c - t + e_{ic} \quad (1)$$

$$= v_c + e_{ic} \quad (2)$$

[6]To the extent that capital is an imperfect substitute for labor, such policies will ultimately result in increases in labor demand in the targeted area, just like wage subsidies. Of course, the impact on labor demand will be quantitatively smaller per dollar spent than in the case of direct subsidies to the wage bill.

[7]For simplicity, we assume these areas are distinct labor markets, meaning that workers cannot live in one market and work in another. See Busso, Gregory, and Kline (2013) for a neighborhood model incorporating multiple locations, commuting, and extensive margin labor supply decisions.

[8]The assumptions that workers supply a fixed amount of labor and consume a fixed amount of housing are not crucial, but greatly simplify the analysis.

where w_c is the nominal wage in city c, r_c is the cost of housing, A_c is a measure of local amenities, and t is a lump sum tax. The term e_{ic} represents worker i's idiosyncratic preferences for location c and is assumed to have mean zero across workers.

Thus, utility in location c is the sum of two components: a systematic component, $v_c \equiv w_c - r_c + A_c - t$, shared by all workers residing in that location, which measures the average worker valuation of the community; and an idiosyncratic component e_{ic} that is different for each worker and reflects individual specific preferences for that location over and above any real wage and amenity differences. A larger e_{ic} means that worker i is particularly attached to city c holding constant real wages and amenities. For example, having family in city c may make it more attractive.

For analytical convenience, we further assume that the e_{ic} are independently and identically distributed according to a type I Extreme Value distribution with scale parameter s and mean zero.[9] This in turn implies the difference in idiosyncratic preferences for community a and b is distributed across workers according to a Logistic distribution:

$$(e_{ia} - e_{ib})/s \sim Logistic(0, 1). \tag{3}$$

The parameter s governs the strength of idiosyncratic preferences for location and therefore the degree of labor mobility. If s is large, many workers will require large real wage or amenity differences to be compelled to move. On the other hand, if s is small, most workers are not particularly attached to one community and will be willing to move in response to small differences in real wages or amenities. In the extreme case where $s = 0$ there are no idiosyncratic preferences for location and workers will arbitrage any differences in the systematic component of utility.

Firms in each city produce a single good Y using labor and a local amenity. We assume that Y is a traded good sold on international markets at price one. Production is Cobb-Douglas with constant returns to scale:

$$Y_c = X_c N_c^{\alpha} K_c^{1-\alpha}, \tag{4}$$

where X_c is a city-specific productivity shifter, N_c is the fraction of workers in community c, and K_c is the local capital stock. We assume capital markets are globally integrated so that firms in each city can rent as much capital as desired at fixed price ρ.

To study the effects of a subsidy designed to increase demand for labor in a city, we assume that the government provides an ad valorem wage credit τ_c to employers in community c.[10] The subsidy is financed by lump sum taxes on all workers independent of their location so that the following balanced budget condition holds:[11]

$$w_a \tau_a N_a + w_b \tau_b N_b = t. \tag{5}$$

[9]None of the substantive results here hinge on the Extreme Value assumption. See Kline (2010) and Busso, Gregory, and Kline (2013) for analyses with a nonparametric distribution of tastes.

[10]This is a realistic feature of many place based policies. For example Empowerment Zones provide an annual wage subsidy to qualified workers who live and work in the zone.

[11]Because labor supply is fixed, no labor-leisure distortion would emerge even with ad valorem income

Firms equate the marginal revenue product of labor to wages net of taxes:

$$w_c(1-\tau_c) = \alpha \frac{y_c}{N_c}. \tag{6}$$

which, after plugging in the first order condition for capital $\rho = (1-\alpha)\frac{Y_c}{K_c}$ and rearranging, yields the (inverse) labor demand function in city c:

$$\ln w_c = C + \frac{\ln X_c}{\alpha} - \frac{1-\alpha}{\alpha}\ln \rho - \ln(1-\tau_c), \tag{7}$$

where $C \equiv \ln \alpha + \frac{1-\alpha}{\alpha}\ln(1-\alpha)$ is a constant.

As this representation makes clear, the inverse labor demand schedule is horizontal in wage-employment space. This results from our assumptions that production exhibits constant returns to scale and that capital is elastically provided at price ρ. As a result, wage variation across cities stems entirely from variation in productivity levels.[12] A corollary of this result is that firms face zero profits and cannot bear the incidence of local subsidies or taxes (see Suarez Serrato and Zidar, 2013 for a spatial equilibrium model where firms can bear some of this incidence in the form of product market rents).

Housing is supplied competitively at marginal cost which, because land is fixed, is increasing in the number of units produced. We assume that this gives rise to the following constant elasticity inverse supply function:

$$r_c = z_c N_c^{k_c} \tag{8}$$

where the number of housing units in city c is assumed to be equal to the number of workers N_c. The parameter k_c governs the elasticity of housing supply. We assume that this parameter is exogenously determined by geography and local land regulations. In cities where geography and regulations make it easy to build new housing, k_c is small (Saiz, 2008). In the extreme case where there are no constraints to building new houses, the supply curve is horizontal, and k_c is zero.

In our framework, workers and landowners are separate agents. While in reality most workers own their residence, this is not always true in urban areas where the poor reside. Keeping workers separate from landowners has the advantage of allowing us to separately identify the welfare consequences of changes in housing values from the welfare consequences of changes in labor income.[13] This is important both for conceptual clarity and for thinking about the different implications of the results for labor and housing policies.

taxes. However charging an income tax based upon nominal incomes would introduce complications along the lines discussed by Albouy (2009).

[12]This result can be relaxed in many ways. For example, it is natural to expect firms to use land in the production process, which would lead labor demand to be downward sloping again.

[13]Also, housing wealth tends to be concentrated among the wealthy, making increases in housing prices regressive.

Landlord profits are given by the area above the inverse supply curve, which can be written:

$$\Pi_c \equiv \int_0^{N_c} (r_c - z_c x^{k_c}) dx = \frac{k_c}{k_c + 1} r_c N_c. \tag{9}$$

Note that these profits, which are the only form of producer surplus in this model, depend negatively on the housing supply elasticity k_c. In the extreme case where k_c approaches zero, landlord profits disappear. This follows from the fact that when housing is supplied at constant marginal cost, average costs equal price.

2.2 Equilibrium

Workers are free to live in the city that maximizes their utility. A worker chooses city a if and only if $e_{ib} - e_{ia} < v_a - v_b$. Given (3), the fraction N_a of workers who will locate in city a can be written

$$N_a = \Lambda \left(\frac{v_a - v_b}{s} \right), \tag{10}$$

where $\Lambda(.) \equiv \frac{\exp(.)}{1+\exp(.)}$ is the standard Logistic CDF. The fraction (and hence number) of workers in community a is increasing in the real wage gap $(w_a - r_a) - (w_b - r_b)$ between city a and b and in the gap $A_a - A_b$ in amenities between the cities. The elasticity of city size with respect to city specific components of utility depends on the distribution of worker preferences for location. Specifically, one can show that:

$$\frac{d \ln(N_a)}{d \ln(v_a - v_b)} = \frac{N_b}{s}(v_a - v_b) \tag{11}$$

If idiosyncratic preferences for location are not very important (s is small), then workers are very sensitive to differences in mean utility between cities. In the limiting case of perfect mobility ($s = 0$), any difference in real wages not offset by a corresponding difference in amenities results in the entire population of workers choosing the city with the higher mean utility. By contrast, as s approaches infinity, workers become insensitive to prices and are effectively immobile.

The equilibrium of our model is easy to characterize. From equation (10) we have that the marginal worker's relative preference for city b over city a needs to equal the difference in real wages net of amenities:

$$s\Lambda^{-1}(N_a) = (w_a - w_b) - (r_a - r_b) + (A_a - A_b). \tag{12}$$

Workers whose relative preference for city b is greater than the difference in real wages net of amenities locate in b, while those whose relative preference for city b is less than the difference in real wages net of amenities locate in a. To see the role played by the model's fundamentals in determining city size and the identity of the marginal worker, we can use equations (7) and (8) to re-write this expression as :

$$\underbrace{s\Lambda^{-1}\left(N_a\right)}_{\text{Difference in Tastes}} = \underbrace{\frac{e^C}{\rho^{\frac{1-\alpha}{\alpha}}}\left(\frac{X_a^{\frac{1}{\alpha}}}{1-\tau_a}-\frac{X_b^{\frac{1}{\alpha}}}{1-\tau_b}\right)}_{\text{Wage Difference}} - \underbrace{\left(z_a N_a^{k_a}-z_b\left(1-N_a\right)^{k_b}\right)}_{\text{Rent Difference}} + \underbrace{A_a - A_b}_{\text{Amenity Difference}} .$$

The left hand side of this expression gives the quantiles of workers' relative preferences $(e_{ib} - e_{ia})$ for city b as a function of N_a. We can think of this function as defining a supply curve to city a. This is graphically represented by the upward sloping blue curve in Figure 1. The height of this curve gives the idiosyncratic preference for city b relative to city a of a marginal worker. Moving to the right, the curve increases as the stock of workers with low distaste for city a is depleted leading the tastes of the marginal worker to change.

The right hand side of this expression gives the difference in mean utilities between the two communities. We can think of this as defining a relative demand curve for residence in city a versus city b, with the height of the curve giving the mean willingness to pay to move from city b to city a given local prices. This is shown graphically by the downward sloping green curve in Figure 1. The willingness to pay to live in a is decreasing in N_a because city a becomes relatively more expensive as it grows.

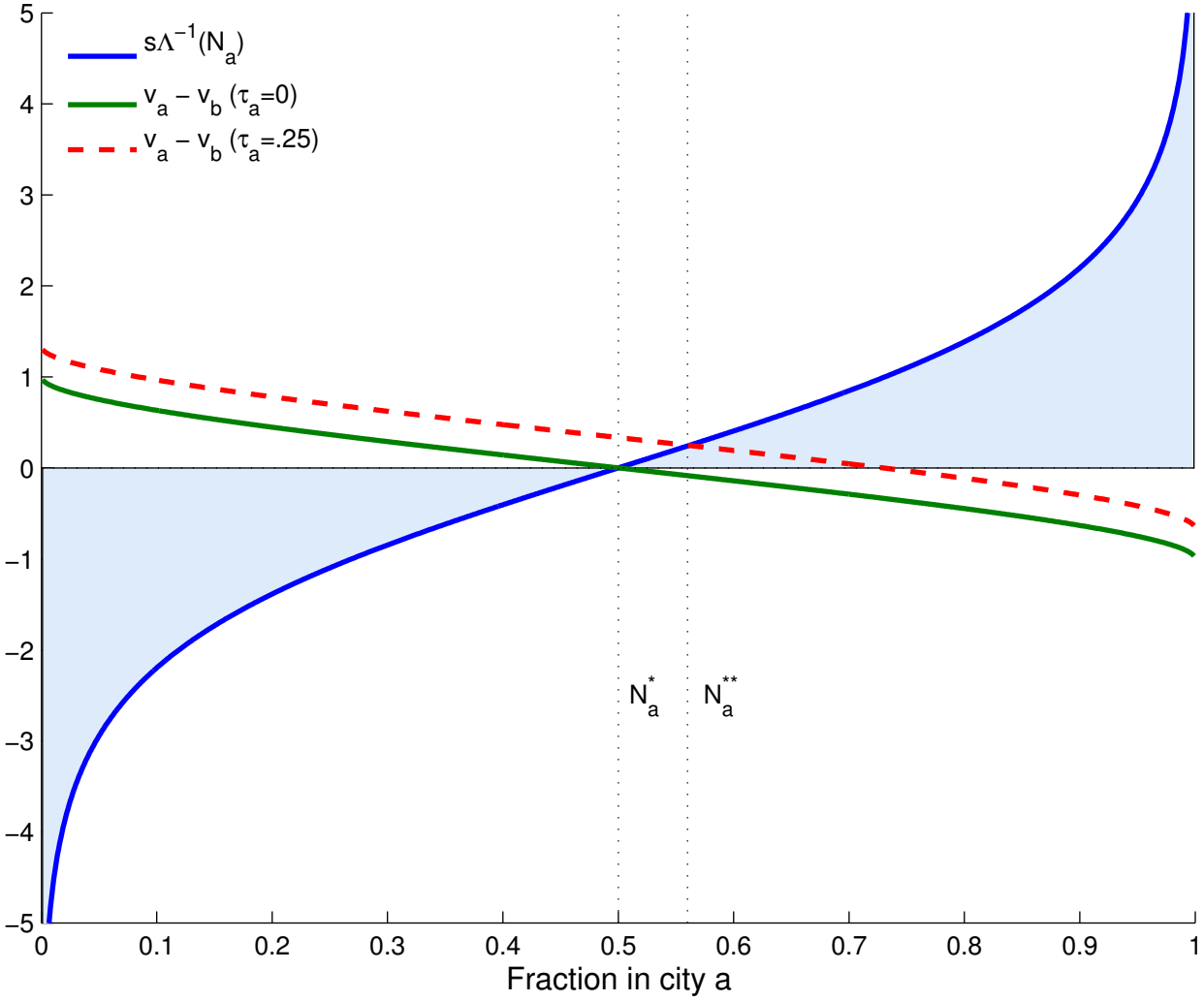
Equilibrium occurs when these two curves cross. Figure 1 shows the case where the two cities are initially identical in terms of productivity, amenities, and housing supply, so that half of the workers live in city a and the other half in city b.[14]

In this equilibrium, there is a single marginal worker (at point N_a^*) who is indifferent between city a and city b. All other workers are inframarginal and enjoy a positive consumer surplus associated with choosing the city they strictly prefer. The magnitude of consumer surplus depends on the strength of idiosyncratic preferences for location, which in turn depends on s. This is easy to see in the Figure. The blue shaded area between the blue line and the equilibrium value of $s\Lambda^{-1}\left(N_a^*\right)$ (which in this example is zero) measures the consumer surplus accruing to workers. The area to the left of N_a^* gives the surplus accruing to workers who are inframarginal with respect to community a while the area to the right of N_a^* gives the surplus accruing to workers who are inframarginal with respect to community b.

The magnitude of surplus is increasing in the scale s of taste heterogeneity which governs the curvature of the blue line. In the extreme case when workers are completely homogeneous in their preferences – so that $s = 0$ – the line becomes horizontal, as workers only care about real wages and amenities and are willing to relocate to a different city for any infinitesimal difference in real wages net of amenities. In equilibrium, when $s = 0$, *all* workers are indifferent between the two communities and there are no inframarginal workers. Conversely,

[14] This figure was constructed by setting $s = 1$, $k_a = k_b = .5$, $z_a = z_b = 1$, and $A_a = A_b = 0$, and $X_a^{\frac{1}{\alpha}} = X_b^{\frac{1}{\alpha}} = 1$ and $\tau_b = 0$.

Figure 1: Equilibrium



as s approaches infinity, the blue line becomes nearly vertical as workers are willing to pay anything to locate in their preferred city.

Figure 1 can be used to assess graphically how the fraction of workers in city a changes in response to changes in location fundamentals. Increasing the supply of housing in city a (i.e. lowering z_a) reduces the slope of the green curve and increases N_a^*. An increase in either the amenity (A_a) or productivity (X_a) level of city a will shift the green curve up and increase the fraction of workers in that city while an increase in the amenity or productivity levels of city b will have the opposite effect.

A similar effect is generated by the introduction of a wage subsidy in city a. Because the wage subsidy makes it cheaper for firms to hire workers in a, the size of the city grows. Figure 1 shows that an increase of τ_a from zero to 0.25 raises the equilibrium fraction in city a from N_a^* to N_a^{**}. This new equilibrium yields a higher systematic component of utility in city a relative to city b, which means the economic rents accruing to prior residents of city a increase.

2.3 Labor and Housing Markets Effects

While Figure 1 is useful for illustrating the comparative statics of city size and consumer surplus, it is useful to have expressions for the broader impacts of a place based subsidy on labor and housing markets in the two cities.

A small increase in the wage subsidy to city a yields an increase in nominal wages there:

$$\frac{dw_a}{d\tau_a} = \frac{w_a}{1-\tau_a}. \tag{13}$$

By contrast, nominal wages in city b are unaffected. Attracted by higher wages, workers leave b to move to a:

$$\frac{dN_a}{d\tau_a} = \frac{N_a N_b}{s + k_b r_b N_a + k_a r_a N_b} \frac{w_a}{1-\tau_a} > 0. \tag{14}$$

Note that the number of movers is larger the smaller is s and the larger is the elasticity of housing supply in city a (i.e. the smaller is k_a). A smaller s implies that idiosyncratic preferences for location are less important, and therefore that labor is more mobile in response to real wage differentials. A smaller k_a means that it is easier for city a to add new housing units to accommodate the increased demand generated by the in-migrants.

Because of in-migration, the cost of housing in city a increases while that in city b decreases:

$$\frac{dr_a}{d\tau_a} = \frac{k_a r_a N_b}{s + k_b r_b N_a + k_a r_a N_b} \frac{w_a}{1-\tau_a} > 0 \tag{15}$$

$$\frac{dr_b}{d\tau_a} = -\frac{k_b r_b N_a}{s + k_b r_b N_a + k_a r_a N_b} \frac{w_a}{1-\tau_a} < 0 \tag{16}$$

This increase in city a's housing costs is increasing in k_a while the decrease in city b's housing costs is increasing in k_b.

Real wages in a increase by:

$$\frac{d(w_a - r_a)}{d\tau_a} = \frac{s + k_b r_b N_a}{s + k_b r_b N_a + k_a r_a N_b} \frac{w_a}{1-\tau_a} > 0. \tag{17}$$

Since wages in b are unaffected by outmigration, the real wage change in b is given simply by the cost of living drop in (16).

Thus, real wages increase in both cities. In the target city, real wages increase because the subsidy raises nominal wages more than housing costs. In city b, real wages rise because of outmigration. In general, the increase in city a is (weakly) larger than the increase in city b, which is intuitive given that city a is the target city and labor is not infinitely mobile. However, when labor is infinitely mobile ($s = 0$) the increase is the same in the two cities.

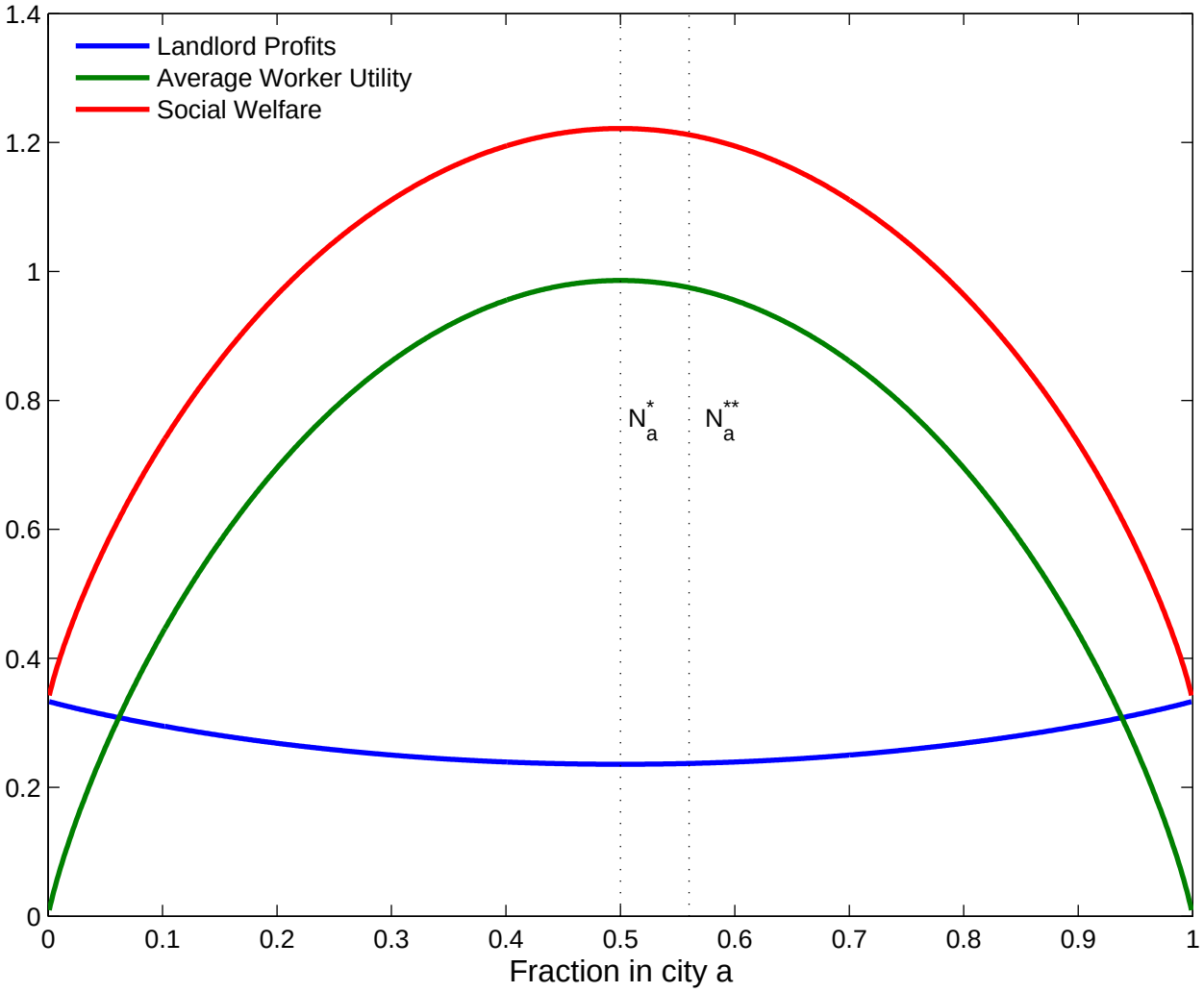
2.4 Welfare

We now have all the elements needed to quantify the impact of the policy on worker and landlord welfare in each city and in the aggregate.

A Graphical Example

To build intuition for the welfare impacts of a place based policy, we start with the example of the two cities represented in Figure 1. The green line in Figure 2 depicts the average worker utility that would prevail if, instead of allowing workers to migrate on their own, we forced a fraction of them to locate in city a, allocating them in order of their preference for city a relative to city b.[15] The blue line depicts aggregate landlord profits $\Pi_a + \Pi_b$.

Figure 2: Welfare as a Function of City a's Share



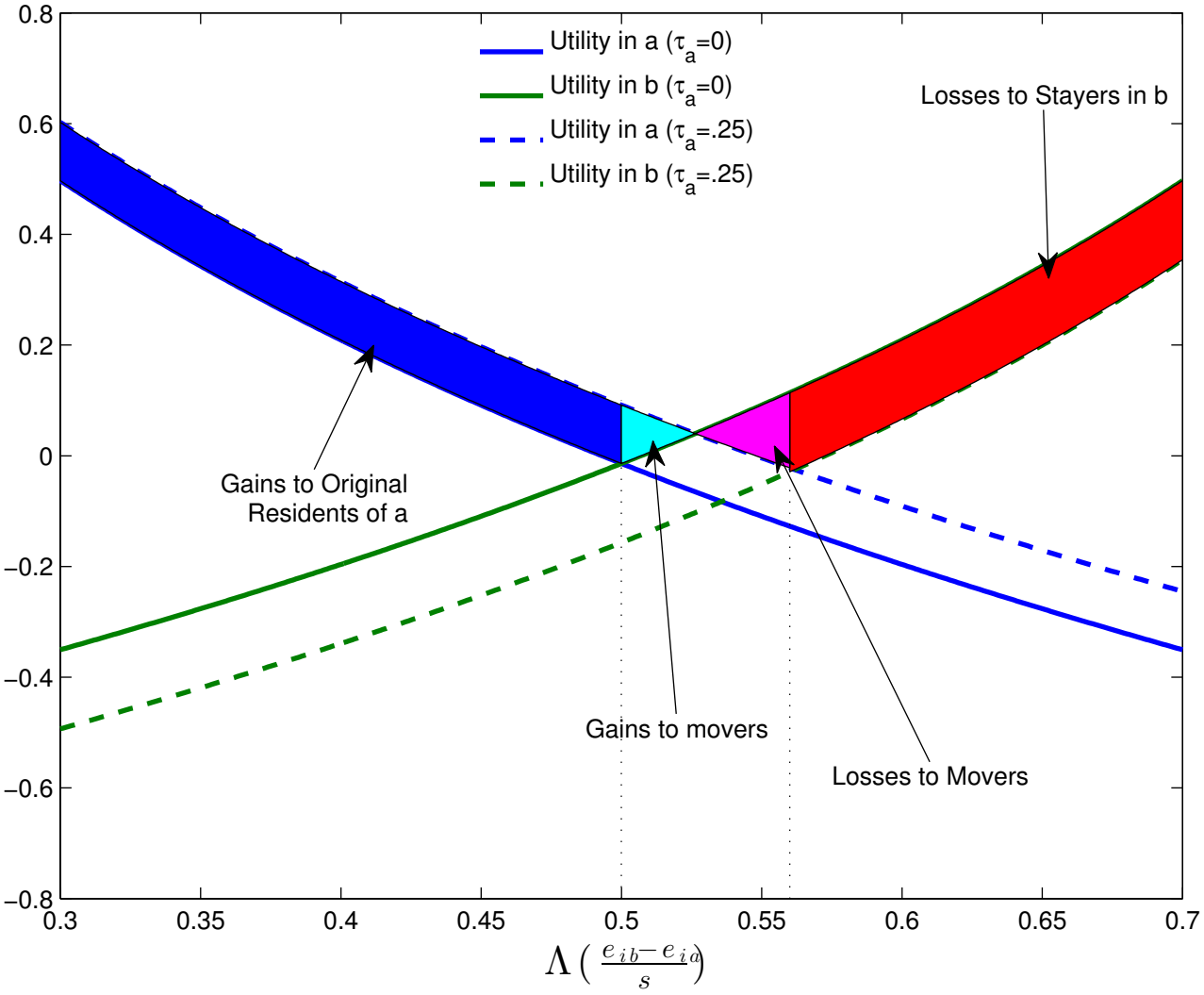
Because in this example the two cities are initially identical, and housing costs increase non-linearly in city size, aggregate worker utility is maximized when half of the workers live in city a and half in city b, which is the decentralized equilibrium. At this point housing prices in the two cities are minimized and the sum of worker utility and landlord profits is maximized. This is a natural implication of the First Welfare Theorem – in the absence of

[15] One can show that this allocation scheme yields average worker utility $N_a(v_a - \ln N_a) + N_b(v_b - \ln N_b)$, which is what is plotted in Figure 2.

subsidies, our model exhibits complete markets and no externalities. Hence, we expect the decentralized equilibrium to maximize total economy-wide welfare, which in this case is the sum of worker welfare and landlord profits.

Instituting a wage subsidy for community a distorts prices, which shifts the equilibrium to a socially suboptimal allocation N_a^{**} where average worker utility is slightly lower and landlord profits are slightly higher. The resulting decrease in total social welfare is the standard deadweight loss familiar from the study of taxation (Auerbach and Hines, 2002).

Figure 3: Worker Utility by City



In exchange for these deadweight losses, our place based policy may yield socially desirable effects on the distribution of utility. Suppose that, for reasons outside of our model, we are interested in transferring resources from the residents of city b to those of city a, perhaps because the residents of city a have been mistreated in the past.[16] Does the wage subsidy

[16]In the interest of parsimony we have ignored worker income heterogeneity, and thus cannot consider here redistribution across groups with heterogeneous endowments. However, it is straightforward to generalize the model to include multiple skill types each with a different valuation of local amenities (See for example

reach its intended target population?

Figure 3 shows the utility of each resident of our economy under each possible location choice. Workers are ordered in terms of their *relative* taste for city a, from greatest to least. The solid blue line is downward sloping because the taste for city a declines as we move to the right.[17] Likewise, the solid green line is upward sloping because the taste for city b increases as we move to the right.

Subsidizing city a shifts the blue line up by the amount of the change in real wages net of taxes and the green line down by the corresponding effect on disposable income there. From the Figure, we see that the subsidy yields a windfall to the original residents of city a, who receive higher real wages. This gain is accomplished via a transfer from the residents of city b who are made worse off by higher taxes. Workers who are not too attached to city b respond by moving to city a. For some of them, this move leaves them better off than they were under the prior unsubsidized regime. But others, who felt a stronger attachment to city b, are worse off even after moving.

From Figure 2, we know the gains to original residents of city a and movers are outweighed by the losses to prior residents of city b. These aggregate losses stem both from a transfer to landlords (particularly those in city a) and the aforementioned deadweight loss. Deadweight losses result from worker mobility. Note that, in Figure 3, even movers who gain from the subsidy experience less of a gain than the original residents of city a. Yet, by moving, they add to the revenue cost of the wage subsidy just like original residents. Thus, there is a subgroup for whom an extra dollar of wage credits is valued at less than a dollar, which is the source of the program's efficiency cost.

Analytical Results

Our graphical analysis was predicated on a particular choice of parameter values. To explore the model more generally, we now derive explicit formulas for the marginal impact of a wage subsidy on worker and landlord welfare. From (2) and our Extreme Value assumption on the idiosyncratic component of utility, average worker utility given optimal location choices can be written:

$$V \equiv E \max\{U_{ia}, U_{ib}\} = s \log(\exp(v_a/s) + \exp(v_b/s)) \tag{18}$$

which follows from standard results on the inclusive value of Logit models (e.g. McFadden, 1978; Rust, 1987).

Moretti (2011)). If lower skilled workers are predominately located in city b and are not particularly mobile, then there may be an equity argument for targeting transfers to this community.

[17] More precisely, the average taste for city a declines as the relative taste for city a declines. In particular, one can show that, when $s = 1$, $E[e_{ia}|e_{ia} - e_{ib} = k] = -1 - \ln(\Lambda(k))$. Thus, the expected utility of living in city a for a worker with $e_{ia} - e_{ib} = \Lambda^{-1}(N_a)$ is $v_a - 1 - \ln N_a$. The corresponding utility of living in city b for such a person is $v_b - 1 - \ln(1 - N_a)$. Figure 3 plots these functions holding (v_a, v_b) at their equilibrium values, i.e. for $v_a = v_a(N_a^*)$ when $\tau_a = 0$ and $v_a = v_a(N_a^{**})$ when $\tau_a = .25$.

Simple differentiation reveals that a small increase in the subsidy to community a yields the following effect on aggregate worker welfare:

$$\frac{dV}{d\tau_a} = N_a \frac{d}{d\tau_a}(w_a - r_a) + N_b \frac{d}{d\tau_a}(w_b - r_b) - \frac{dt}{d\tau_a} \tag{19}$$

Thus, to first order, the impact of a subsidy to city a equals the impact on the real wages of city a times the share of workers in that city plus the impact on the real wages of city b times the share of workers in that city minus the cost of raising funds. Put differently, the impact on worker welfare is equal to the increase in total earnings minus the increase in total rents that would result if none of the workers moved minus the subsidy cost.[18] The movers do not show up in this expression (there are no terms of the form $\frac{dN_c}{d\tau_a}$) because, to first order, they were indifferent about the two communities to begin with – a standard implication of the envelope theorem. Inspection of Figure 3 provides graphical intuition for this: the size of the welfare gains and losses of movers are proportional to the size of the subsidy. Hence, for a small change, movers are about as well off as they would be had they not switched communities.[19]

Using (16) and (17), equation (19) evaluates to:

$$\begin{aligned} \frac{dV}{d\tau_a} &= \left[w_a N_a - \frac{k_a r_a N_a N_b}{s + k_a r_a N_b + k_b r_b N_a} + \frac{k_b r_b N_a N_b}{s + k_a r_a N_b + k_b r_b N_a} \right] \frac{1}{1 - \tau_a} \qquad (20) \\ &\quad - w_a N_a - \frac{dw_a}{d\tau_a} N_a \tau_a - \tau_a w_a \frac{dN_a}{d\tau_a} \\ &= \underbrace{-(k_a r_a - k_b r_b) \frac{N_a N_b}{s + k_a r_a N_b + k_b r_b N_a}}_{\text{Cost of Living Increase}} \frac{1}{1 - \tau_a} \underbrace{- w_a \tau_a \frac{N_a N_b}{s + k_a r_a N_b + k_b r_b N_a}}_{\text{Deadweight Loss}} \qquad (21) \end{aligned}$$

Equation (20) indicates that the increased subsidy represents a transfer of size $\frac{w_a N_a}{1-\tau_a}$ to workers in city a paid for by all taxpayers. This has no net effect on average worker utility, but clearly makes workers in city b worse off and workers in city a better off.

In addition to inducing a transfer to workers in a, the subsidy can lower average worker utility for two reasons. First, as illustrated by the first term in (21), the subsidy can change the average cost of living. Depending on the elasticities of housing supply in the two cities, the average worker's cost of living may increase or decrease in response to the subsidy. Any increases (decreases) constitute a net transfer to (from) landlords.[20] As already discussed, landlords in city a benefit from the subsidy while those in city b suffer a reduction in rents. The rent reduction in b unambiguously benefits residents of community b who experience no corresponding change in wages.

[18] This result relies on our assumption of linear utility. With nonlinear utility and heterogeneous endowments, the distribution of wealth across workers and the degree of curvature in utility would influence the aggregate welfare effects of a policy change.

[19] See Busso, Gregory, and Kline (2013) for a proof that this envelope condition holds more generally without the extreme value assumption on the errors.

[20] To see this note that $\frac{d}{d\tau_a}\Pi_c(r_c) = k_c r_c N_c \frac{d \ln N_c}{d\tau_a}$. Hence, $\frac{d\Pi_a + \Pi_b}{d\tau_a}$ equals the first term in (21).

Second, as illustrated by the second term in (21), the subsidy also yields deadweight costs of taxation. These deadweight costs come from distorting prices that (in the absence of other market imperfections) govern the optimal allocation of workers to cities. Specifically, from our earlier envelope theorem intuition, workers who switch cities in order to claim subsidies are no better off but cost taxpayer money in the form of wage credits. These movers make the cost to society of funding the wage credit greater than the value of the resulting transfers.

Note that the deadweight costs are proportional to $\frac{dN_a}{d\tau_a}$ and fall to zero as s approaches infinity. Thus, we have the somewhat ironic result that the most efficient place based policy is one that induces no mobility response and hence creates no additional jobs! This is the crux of the equity-efficiency tradeoff. The best subsidy of all is one that simply raises earnings in the targeted locality without inducing a behavioral response. If workers are very mobile, then society must have a strong preference for the workers in city a in order to be willing to bear the efficiency costs associated with distorting the location of jobs.

An important caveat is that our model assumes a finite fully employed workforce with fixed labor supply. By assumption, such models imply that all policy induced job growth in an area comes at the expense of an equal number of jobs elsewhere. Adding a labor force participation margin as in Busso, Gregory, and Kline (2013) would allow for the possibility that aggregate employment increases in response to a place based subsidy. Even so, raising employment in such a model is distortionary as it crowds out home production. Of course, such models do not allow for the possibility that some households wish to work but are unable to find jobs. We consider this possibility in Section 3 which discusses market failures.[21]

2.5 Locally Financed Place Based Policies

Our discussion so far has centered on the case where place based policies are exogenously set and financed by a larger federal government. In many cases, however, localities compete to attract outside investment and new employers, making the policies themselves endogenous.[22]

Bidding contests of this type can be thought of as auctions where multiple buyers offer bids to a limited number of sellers (Greenstone and Moretti, 2004). Competition among localities implies that some of the incidence of local subsidies shifts away from workers and landowners to firms. To see this, consider the case of a firm trying to decide where to locate

[21] With unemployment comes the possibility that local government spending can raise output by more than the social cost of funds. For example Wingender and Suarez Serrato (2011a) find a local income multiplier of 1.88. However these findings are also consistent with the presence of neoclassical product linkages. For example if government subsidized the local traded goods sector that also demands local nontraded goods as intermediate inputs, one can achieve a positive multiplier.

[22] In 2011, for example, San Francisco approved a cut in payroll taxes in the mid-Market Street area, where Twitter and other high tech companies are located. The payroll-tax zone exempted employers from the 1.5% levy for new hires made after firms move to the mid-market area. In addition, the city exempted stock-based compensation from payroll tax through the city. Both measures where designed to retain high tech companies within the city jurisdiction. In 2011, the payroll-tax revenue forgone amounted to $2.8 million. (Letzing, 2012)

a new establishment, and a large number of counties trying to lure it to their jurisdiction. Assume that the entire cost of the subsidy is paid for by the winning county. The value to a county of attracting an establishment is the increase in worker and landowner welfare it generates, either indirectly through tax revenue or directly through agglomeration effects.

When locations are homogenous – and therefore have homogeneous valuations of establishments – competition among counties ensures that the winning bid rises to the point that makes the winner indifferent between attracting the plant and not attracting it. In this case, the place based policy has no effect on residents' welfare since all the benefit of attracting the new employer is transferred to the firm. When locations are heterogeneous, the county that has the highest valuation wins by raising its bid to the point that makes the county with the second highest value indifferent between winning and losing. In this case, local workers and landowners capture a fraction of the overall benefit. This fraction is larger the larger the heterogeneity across locations.

2.6 Empirical Evidence on Two Place Based Policies

Having considered the theoretical equity-efficiency tradeoffs inherent in place based policies, it is useful to take a look at the empirical evidence on some actual programs. Two of the most heavily studied place based programs in the U.S. are the state system of Enterprise Zones and the larger federal system of Empowerment Zones.

Enterprise Zones are state run programs that provide employment and investment subsidies to firms located in targeted areas. The literature on Enterprise Zones is typical of much of the empirical literature on place based policies in that it has primarily focused on assessing the impact of subsidies on job creation.[23] The latest studies find conflicting results, with Neumark and Kolko (2010) concluding that the job creating benefits of the California enterprise zones are negligible but Ham et al. (2010) concluding from an analysis of a broader national sample of enterprise zones that their effects are substantial.[24]

To some extent these disagreements arise because empirical estimates of the effects of place based policies tend to be imprecise due to the relatively small populations being targeted. Another problem is that Enterprise Zones in different states often entail widely different mixes of incentives. This makes it difficult to compare across studies, as program effects are likely to be heterogeneous. Even when incentives are standardized, program effects may vary with the characteristics of the community being treated. A recent paper by Briant et al. (2013) analyzes the French system of Enterprise Zones using a large administrative dataset. They find that the effects of French zones are highly heterogeneous,

[23]Examples include, but are not limited to Papke (1993, 1994); Boarnet and Bogart (1996); Greenbaum and Engberg (2004); Bondonio and Greenbaum (2007); Elvery (2009); Neumark and Kolko (2010); Lynch and Zax (2011); Ham et al. (2011); Gobillon et al. (2012); Mayer et al. (2012); Crisculo et al. (2012)

[24]In related work Freedman (2012, 2013) analyzes the New Markets Tax Credit initiative which is similar to an enterprise zone but provides investment instead of wage subsidies. Using a regression discontinuity design, he generally finds small positive effects on employment and other neighborhood outcomes.

with communities that are more spatially integrated into the surrounding metropolitan area responding more strongly to incentives.

Understanding the employment effects of these policies is an important first step. However, as we have seen, employment impacts are an indirect measure of program success. Busso, Gregory, and Kline (2013) provide one of the first attempts to evaluate a place based policy within a coherent equilibrium framework. They examine Round I of the federal urban Empowerment Zone (EZ) program which targeted six of the most distressed urban communities in the United States. The program offered a standardized mix of large block grants and generous tax credits to be claimed by local firms on wages paid to employees who lived and worked in the zone. This restriction on the wage credits is theoretically important as targeted neighborhoods contained only a small fraction of jobs in the metropolitan area, making it quite easy for outsiders to commute into the zone and for zone residents to commute out. Tying the credits to workers who lived and worked in the zone provides a way of limiting deadweight loss by raising the costs to workers of capturing the wage credits – they cannot simply commute into the zone. This also presumably facilitates better targeting of the intended poor population of original zone residents.

To assess the impact of EZs on affected communities Busso, Gregory, and Kline compare them to communities in other cities that applied for the program but were rejected. They find, as expected, that EZs raised local employment. They also find that the wages of local workers who lived and worked in the zone rose, pointing to an important role for the tax credits. Surprisingly, population and rental rates of housing remained stable, suggesting that the targeted neighborhoods had some slack in the local housing market. This allowed the subsidies to generate a transfer to local workers inside the zone without inadvertently providing a subsidy to absentee landlords who are likely to be relatively wealthy.

Their bottom line conclusion is that the EZ program seems to have successfully boosted earnings in targeted neighborhoods without raising the local cost of living. One explanation for this finding is that these neighborhoods are poor substitutes for residence elsewhere in their metropolitan areas. As a result, relatively few workers were willing to move into EZs in order to capture benefits, thus limiting the mobility response and rent increases. It is of course possible that over longer time horizons (the study covers only the first six years of the program) the mobility response will be greater and rents will rise. An important topic for future research is what happens when targeted subsidies like the EZ program expire.

3 Welfare Effects of Place-Based Policies With Market Imperfections

The previous section discussed the equity and efficiency tradeoffs faced by policymakers when labor and housing markets function efficiently. However, there are several reasons to expect inefficient market allocations. We now consider five of the most relevant market

imperfections and their implications for place based policies.

3.1 Local Public Goods

Pure public goods will tend to be under-provided by the private sector (Bergstrom, Blume, and Varian, 1986). Hence, a key role of local governments is to provide core public services in the areas of health, safety, and infrastructure that raise the utility of local residents (see Glaeser, 2013 for a review). In a federalist system, place based policies can take the form of supplements to investment in local consumption or productive amenities. If amenities are uncongestible and exhibit no maintenance costs, then amenity-building strategies will avoid deadweight losses of the sort encountered with wage credits because worker mobility does not directly cost taxpayers.[25]

Suppose for simplicity that consumption amenities are produced via a linear technology where a λ dollar increase in government investment t yields a dollar increase in the local amenity level. Then, from (18), a small government driven increase in city a's amenity level will yield:

$$\begin{aligned} \frac{dV}{dA_a} &= N_a\left(1-\frac{dr_a}{dA_a}\right) - N_b\frac{dr_b}{dA_a} - \frac{dt}{dA_a} \\ &= \frac{(s+k_b r_b)N_a}{s+k_a r_a N_b + k_b r_b N_a} - \lambda. \end{aligned} \tag{22}$$

Take the case where workers are immobile ($s=\infty$). Then this expression reduces to $N_a - \lambda$ and the program raises welfare if $\lambda < N_a$ which simply reflects that every λ dollars of government spending is only raising utility by a dollar for residents of community a. Hence, efficiency becomes a matter of technology – if the government can provide the good (e.g. a public park) at low enough cost it will raise social welfare. In the opposite extreme where workers are perfectly mobile and $s=0$, we need for $\lambda < \frac{k_b r_b N_a}{k_a r_a N_b + k_b r_b N_a}$ if worker welfare is to rise. Whether or not this is a more stringent bound depends on the housing market in the two cities. It is possible for a subsidy to city a to yield an increase in the average cost of living for workers. In such a case, the bound on λ is more stringent as rents are being transferred to landlords. But the sum of landlord profits and worker utility is not affected by these transfers. Hence, regardless of s, economy wide welfare rises whenever $\lambda < N_a$.

The upshot of this discussion is that subsidization of *uncongestible* local amenities yields no direct efficiency cost provided they can be produced cheaply by government.[26] However, if workers are mobile, the benefits associated with amenity changes may be captured in part by

[25] Of course, if such programs are financed via distortionary income taxes they will carry a separate efficiency cost of raising funds.

[26] Evaluating the efficiency of local public investments is difficult. A recent study by Rothstein, Cellini, and Ferreira (2010) uses an innovative research design to evaluate the social value of school facility investments. They find that successful proposals to float school facility bonds substantially raise local property values. Likewise, Wingender and Suarez Serrato (2011b) provide evidence that federal spending shocks are valued

landlords in subsidized areas, while landlords in unsubsidized areas may well face offsetting losses in property value.

Parallel results can be shown to hold for investments in local productive amenities (X_c) under the assumption that such investments (e.g. infrastructure) are not congestible. Allowing for congestion raises complications similar to those arising in the study of agglomeration economies, which we discuss in the next subsection.

3.2 Agglomeration Economies

In the process of economic development, externalities are often generated by producers and consumers alike. On the production side, economists have long hypothesized that the concentration of economic activity is driven, at least in part, by agglomeration economies of some kind. As Lucas (1988) observed, it is hard to explain why else firms producing tradable output would be willing to pay to locate in expensive urban areas where land is scarce. Alfred Marshall (1890) famously argued that they pay because the productivity enhancing best practices of modern trade were to be found "in the air" of industrial districts where "children learn many of them unconsciously." The knowledge spillovers Marshall discussed are examples of productive externalities that have the potential to generate inefficient allocations of economic activity in a market system.

A common rationale for location-based incentives is to foster local agglomeration externalities. By providing incentives to attract new workers or businesses to an area, local governments hope to raise the scale and productivity of other firms in the same locality. Agglomeration economies are not limited to production. Although less studied, there is prima facie evidence of significant agglomeration economies in consumption, especially in the case of local public amenities. We discuss each sort of agglomeration in turn.

Agglomeration Economies in Production

A common way to model agglomeration economies in production is to assume that the productivity of firms in a locality is a function of the density of economic activity. Explanations for agglomeration economies of this sort include technological externalities that may arise through social interactions and learning (Black and Henderson, 1999; Glaeser 1999 and 2001; Moretti, 2004a and 2004b; Henderson, 2008; Greenstone, Hornbeck and Moretti, 2010) or through thick market effects either in the labor market or the intermediate input market (Marshall, 1890).[27] In the context of the previous Section's model, this amounts to assuming that local TFP is a function of employment density:

$$\ln X_c = g\left(\frac{N_c}{R_c}\right), \tag{23}$$

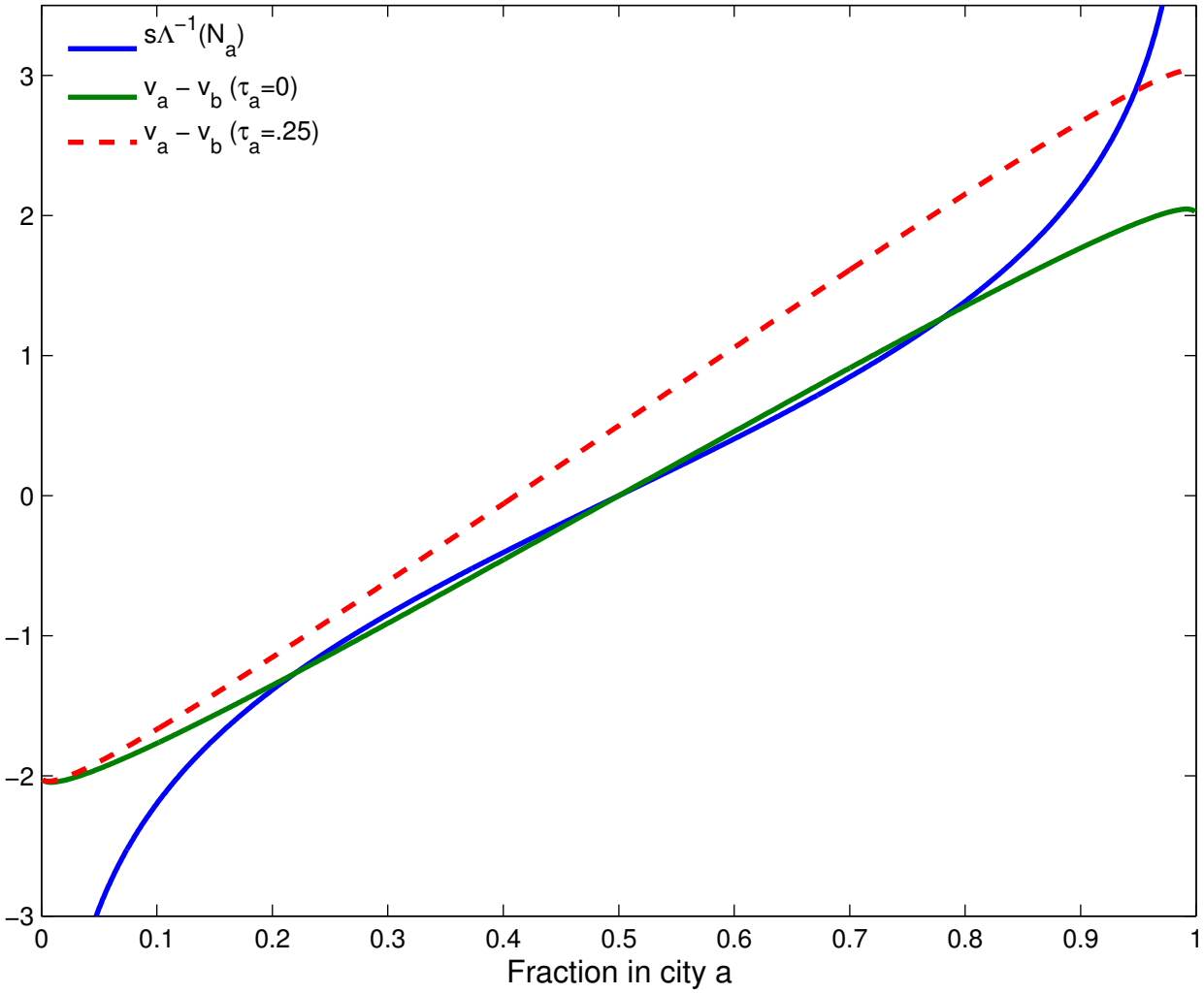
by communities at more than their dollar cost. By contrast, Greenstone and Gallagher (2008) find that Superfund cleanups did not pay off.

[27] Duranton and Puga (2004) provide a review.

where c indexes a locality and R_c is its square mileage.

When agglomeration forces are strong enough, multiple equilibria can arise. As noted by Kline (2010), this can, in principle, provide a compelling role for government intervention, as the welfare benefits of equilibrium selection can easily trump the efficiency costs of distorting prices, which are typically second order small in the absence of prior distortions (Harberger, 1964).[28]

Figure 4: Equilibrium with Agglomeration



Consider, for example, how Figure 1 would change in the presence of significant agglomeration economies. Figure 4 depicts our two cities for the case where $R_a = R_b = 1$ and $g(z) = \ln 3z$. Unlike in Figure 1, community a now becomes relatively more attractive as it grows. This occurs because the relative wage increases accompanying agglomeration outweigh the relative rent increases that result from land scarcity. As before, equilibria occur

[28]This topic has received considerable attention in the trade literature, where a dynamic perspective has been shown to be critical. See, for example, Krugman (1987, 1991) and Rauch (1993). Similar issues arise in the industrial organization literature on markets with network effects (Farrell and Klemperer, 2007).

wherever the $s\Lambda^{-1}(N_a)$ curve crosses the $v_a - v_b$ curve. In this case, there are several equilibria in the absence of government intervention. Though the cities are ex-ante identical, either city may end up being larger and more productive, illustrating the general point that locational fundamentals need not entirely determine outcomes when agglomeration is present. When city a is subsidized via wage credits, a unique equilibrium emerges where more than 90% of the workforce locates in city a.

Because agglomeration economies yield externalities, there is no reason to presume that any of these equilibria is socially optimal. As illustrated in Figure 5, the average utility of workers (and landlords) is maximized when almost all workers sort into a single location. That is, it is optimal for nearly everyone to inhabit either city a or city b, which is not an equilibrium under either policy regime.[29] This results from the rather extreme agglomeration economies assumed in this example which outweigh the deconcentrating forces of land scarcity. In this case, the unique subsidized equilibrium of Figure 4, which pushes most of the population into city a yields a welfare improvement, particularly for the residents of community a.

In principle, with forward looking agents, the mere expectation of government intervention can shift a locality between equilibria, even if funds are not actually spent. The government could, for example, announce that community a is going to be revitalized. If workers deem this announcement credible they may move into the community in anticipation of future gains, leading the announcement to become a self-fulfilling prophecy.[30] In practice, maintaining credibility is difficult and governments likely need to commit "seed money" in order persuade other parties to risk the negative consequences of a coordination failure (Andreoni, 1998). However it does seem realistic to think that in the presence of multiple equilibria, expectations together with the actual provision of subsidies might play a non-trivial role in the process of local economic development.

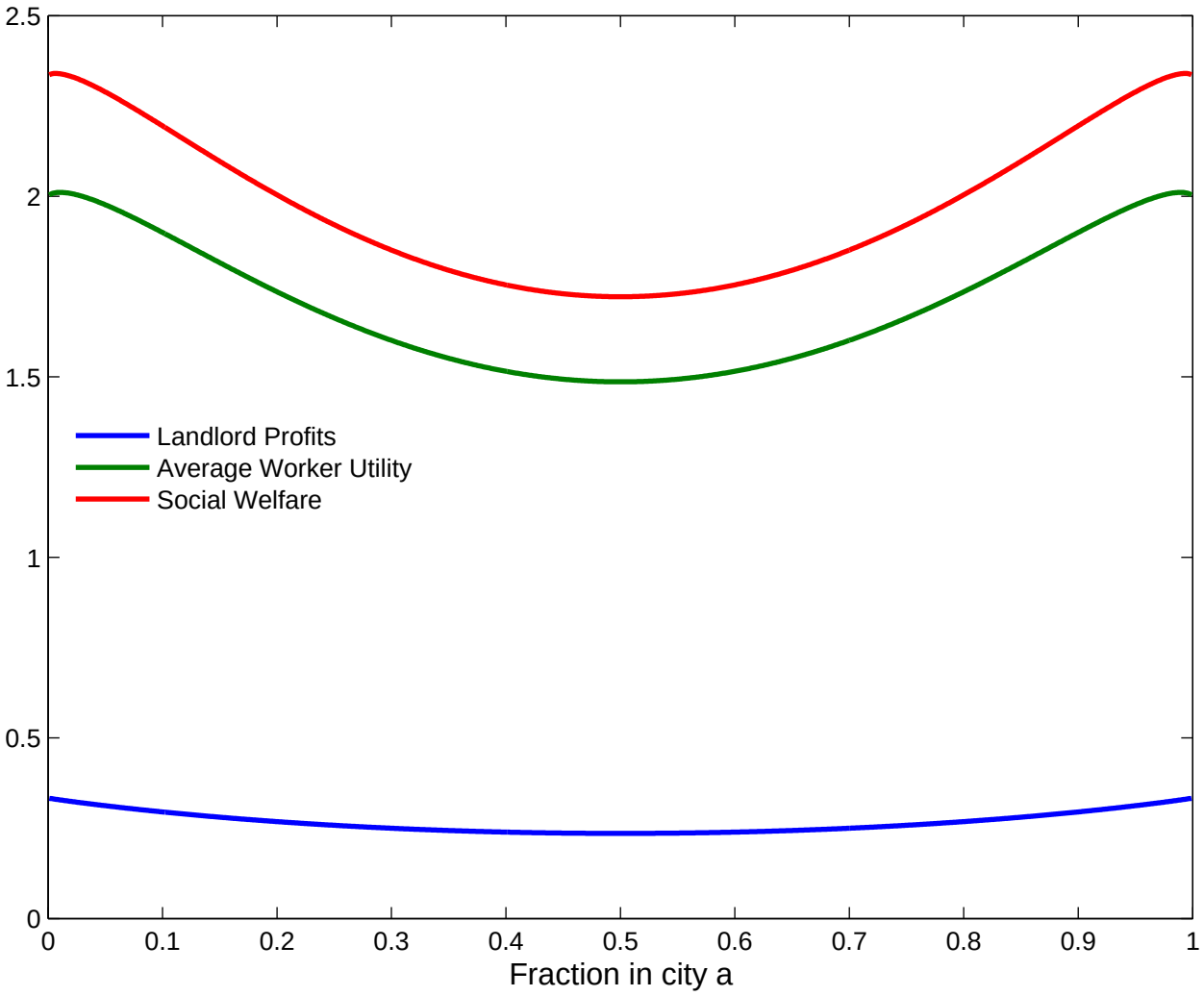
As Kline (2010) notes, an important qualitative feature of dynamic models with multiple steady state equilibria is that a large enough temporary intervention (a "big push") can have permanent effects. Of course, designing such a policy would require extensive knowledge of the economy's structural primitives, particularly the agglomeration function $g(.)$ – knowledge that economists and policymakers are not typically privy to. Indeed, empirical evidence on the very existence of multiple equilibria is inconclusive. While a few papers find evidence of strong path dependence in the location of economic activity (Redding, Sturm, and Wolf, 2012; Bleakly and Lin, 2012), most papers studying shocks to local economies (negative or positive) find that economies revert to stable steady states (Davis and Weinstein, 2002; Kline and Moretti, forthcoming).

It is quite possible that both sets of findings are correct – i.e. that some shocks are mean

[29] It is *nearly* everyone who should move because the idiosyncratic tastes have unbounded support, meaning that some workers will have a nearly infinite distaste for one city or the other and should not be forced to move there.

[30] See Krugman (1991) for an example.

Figure 5: Welfare with Agglomeration



reverting while others have permanent effects. Moreover, as the above discussion suggests, a given policy may have heterogeneous effects depending upon how it shifts expectations. For example Davis and Weinstein study the aftermath of the World War II bombings of Nagasaki and Hiroshima – a shock that should be large enough to shift local economies between steady states. They find that population in these cities reverted to trend relatively rapidly after the bombings. This is consistent with locational fundamentals driving mean reversion of shocks but also with the possibility that much of the country expected these cities to recover which led to self-reinforcing behavior.

Even when equilibria are unique, agglomeration forces have the potential to yield socially inefficient outcomes. Whether they do or not turns out to depend on the shape of the agglomeration function $g(.)$. Moving workers from city b to city a will yield an agglomeration gain in a and a loss in b. Social welfare can be raised if the gain is greater than the corresponding loss. At a social optimum, the gains and the losses cancel exactly. Kline and Moretti (forthcoming) show that whether this happens depends crucially on the elasticity of

local productivity with respect to density:

$$\sigma_c\left(\frac{N_c}{R_c}\right) \equiv \frac{d\ln X_c}{d\ln\left(\frac{N_c}{R_c}\right)} = g'\left(\frac{N_c}{R_c}\right)\frac{N_c}{R_c}.$$

If this elasticity is constant, the gains from reallocating a worker from one community to another always cancel each other out. They devise a dynamic panel approach to estimating the agglomeration function $g(.)$ (and hence $\sigma_c(.)$) empirically in the U.S. manufacturing sector over the period 1970-2000. Their estimates, which are some of the first to have the statistical power necessary to detect nonlinearities, indicate that this elasticity is very close to constant across the range of historical county manufacturing density levels observed in their sample. Thus, agglomeration economies in manufacturing appear to be the rare example of a localized market failure that "cancels out" in the aggregate.

This finding casts serious doubt on the agglomeration rationale for spatially progressive subsidies, at least in U.S. manufacturing. It suggests that little is to be gained from redistributing economic activity from areas with dense manufacturing bases towards less developed areas. However, a few caveats to this conclusion are in order. First, the elasticity σ_c might exhibit some mild variation with respect to density that Kline and Moretti were unable to detect statistically. More importantly, elasticities might well vary as a function of other factors besides density (e.g. industry mix or geographic characteristics). Any significant predictor of σ_c could, in principle, be used to craft spatial policies. Finally, the Kline and Moretti findings need not need generalize to other industries and periods. Investigation of these possibilities is an important topic for future research.[31]

Equation (23) assumes that agglomeration economies only reflect the density of economic activity in an area. However, other types of agglomeration economies are possible. Economists have long speculated that firm productivity in an area might depend not just on density, but also on the aggregate level of human capital. Human capital raises productivity directly – as more educated workers tend to be more productive – but also indirectly – if a worker's productivity also depends on the level of education of others in the same locality. Different explanations have been offered for human capital externalities. For example, the sharing of knowledge and skills through formal and informal interaction may generate positive externalities across workers. Lucas (1988) posits that human capital externalities of this type can potentially explain GDP differences between countries. Alternatively, spillovers from education may arise through search externalities or endogenous skill-biased technical change (Acemoglu, 1996, 1998).

In the context of our model, equation (23) could be augmented so that the productivity

[31] An alternative rationale that has been proposed for subsidies to attract new firms – and especially headquarters – has to do with charitable contributions. Card, Hallock and Moretti (2009) document that attracting the headquarters of a publicly traded firm yields $3-10 million per year in contributions to local non-profits. Most of the increase in charitable contributions appears to be linked to the number of highly-compensated individuals in a city, rather than through direct donations by the corporations themselves.

of firms in a locality depends on the overall level of human capital, HC_c:

$$\ln X_c = g\left(\frac{N_c}{R_c}, HC_c\right). \tag{24}$$

Empirically, HC_c is typically measured either as average years of schooling among workers residing in c or share of workers with a college education.

Although the empirical literature has not reached a consensus on how large human capital externalities are in practice, there is growing evidence that they play an important role in explaining productivity differences across cities.[32] If indeed the social returns to education exceed the private returns and if the externality is localized, then locally financed Pigouvian subsidies to education are potentially welfare improving. However, as in the case of agglomeration economies from density, government intervention that is efficient locally does not have to be efficient in the aggregate due to the potential for spatial displacement.

Currently, State governments substantially subsidize investment in human capital, with students at major U.S. public universities paying an estimated 20% of the direct costs of education (Heckman, 2000). Community colleges, which are usually financed by a mix of state and local revenues, can entail even lower direct costs. A practical challenge for state and local governments is that educated workers tend to be highly mobile, making the link between production and utilization of human capital imperfect. Bound et al. (2004) find that states investing more in public higher education often end up being net exporters of college graduates to other areas. More research is needed to better understand the incidence and aggregate efficiency of state and local subsidies to higher education.

Agglomeration Economies in Consumption

Throughout the world, neighborhoods, cities and regions differ substantially in terms of important local amenities like public safety, school quality, cultural institutions, entertainment, and restaurants. To some extent these differences reflect variation in exogenous locational fundamentals. But they also likely reflect endogenous agglomeration forces.

Consider the case of public safety – a crucial amenity in many urban revitalization efforts. Crime rates vary enormously across cities (Sherman et. al., 1989). In 2012, for example, the rate of violent crime in Detroit was eight times higher than in San Jose. In part, these differences reflect heterogeneity in the racial, age and income composition of residents. But they may also be influenced by spillovers and peer effects, if, for example, potential offenders are influenced by the criminal behavior of others. If one person's proclivity towards crime influences his neighbor's criminal behavior, then a localized policy change will have both a direct effect on crime and an indirect effect through social influence. This indirect effect,

[32]Examples of empirical studies that have found evidence of economically sizable externalities include but are not limited to Rauch (1993b), Moretti (2004a and 2004b), Combes et al. (2010), and Diamond (2012). Evidence in Glaeser and Mare (2001) is also consistent with human capital spillovers from learning. By contrast, Acemoglu and Angrist (2000) find limited evidence of spillovers.

which may be mediated by positive spillovers or strategic complementarities, has been termed a "social multiplier" by Glaeser, Sacerdote, and Scheinkman (2003).

Social multipliers are policy relevant. For example, a common goal of redevelopment efforts is to induce businesses to open stores in rough neighborhoods dominated by high crime, empty storefronts and boarded-up properties. Turning an empty storefront into an active storefront may lower loitering and anti-social behavior in the entire block. Educational, cultural and entertainment amenities (schools, theaters, cinemas, museums, restaurants) display similar multiplier effects. The attraction of a fine restaurant to a dilapidated area may make the area more attractive to other businesses, possibly raising property values and reducing negative externalities. Likewise, improvements in a school district may result in further, endogenous improvements through peer effects or teacher quality effects.

Endogenous amenities have been studied empirically by Diamond (2012). She finds that cities experiencing an increase in the share of college graduates due to an exogenous increase in labor demand for skilled labor tend to become: (a) more desirable places to live because college graduates demand more of certain desirable amenities and (b) more productive for both high and low skill labor due to agglomeration economies. Thus, in her framework, agglomeration economies in consumption and production are tightly intertwined. This is an under-researched area and more work remains to be done documenting how the interplay between agglomeration forces mediates the effects of policy variation.

Agglomeration economies in consumption have policy implications similar to agglomeration in production. When the private return is lower than the social return, local governments ought to intervene with subsidies or taxes in order to align private and social incentives. In the example of the business that opens in a rough neighborhood and lowers criminal activity, a subsidy equal to the economic value of crime reduction (inclusive of the multiplier effect) is a way to internalize the externality.[33]

As always, there may be a tension between local efficiency and aggregate efficiency since local welfare gains may come at the costs of losses elsewhere. For example, the benefits of targeted crime prevention strategies in a given jurisdiction may be mitigated by the displacement of crime to other jurisdictions.[34] When displacement is quantitatively important, policies that are welfare enhancing from the point of view of a specific area may have limited aggregate benefit. Further research is necessary to determine whether amenity building strategies yield greater gains in targeted areas than the corresponding loss in other areas.

[33]Government intervention is not required in all cases. When the feedback effects are merely pecuniary externalities – as in the restaurant example, for example – no technological market failure is involved.

[34]Localized crackdowns have in some cases been shown to displace crime to other areas, although there is considerable debate over the magnitude of displacement effects. See Eck (1993) and Hesseling (1994) for reviews and Aliprantis and Hartley (2013) for a recent contribution.

3.3 Unemployment and Labor Market Frictions

Many place based programs explicitly target areas with high unemployment rates. This reflects, in part, the fact that spatial heterogeneity in unemployment rates is enormous. In 2008, for example, metropolitan unemployment rates varied by as much as 12 percentage points. This cross sectional dispersion in unemployment rates is wider than the variation in national unemployment rates observed over most business cycles (Kline and Moretti, 2013) and is remarkably persistent across decades (Rappaport, 2012)

The model of Section 2 assumed that labor markets clear instantly and generate full employment. This led to the conclusion that distorting wages with a subsidy necessarily generates an efficiency cost. In reality it takes time for workers to find jobs and, in some cases, barriers may exist to creating the right number of jobs. If some unemployment is involuntary, or if labor market frictions lead wages to be determined in part by bargaining power, then demand side interventions can be welfare improving.

The study of spatial variation in unemployment rates is still arguably in its infancy, with most research on local policies ignoring unemployment altogether.[35] The relative paucity of research on the efficiency of place based policies in the presence of unemployment is notable in light of the fact that many such programs state job creation as a primary goal, often with an explicit emphasis on reducing local unemployment. While it is possible that this emphasis on job creation is misguided (as the model of Section 2 suggests), it is also possible that such policies reflect an understanding that labor markets do not always function efficiently.

One possible source of inefficiency is hiring costs, which have been shown to be empirically important for hiring behavior (Hamermesh, 1989; Bloom, 2009). Kline and Moretti (2013) study the role of place based policies in offsetting hiring costs using a variant of the heavily studied Diamond (1982) - Mortensen (1982) - Pissarides (1985) matching framework, adapted to a local labor market setting with a competitive housing market and mobile workers. Hiring costs are modeled as in Pissarides (1999, 2009) – these costs are not sunk at the time that matches are formed and can therefore influence the wage bargain.

Kline and Moretti show that if hiring costs are excessive, firms post too few vacancies, and that this problem is particularly severe in cities where the productivity of a match is low. When this occurs, offsetting place based hiring subsidies are an efficient solution. In their model, the optimal hiring subsidy is city specific in the sense that it depends upon the

[35] Examples of recent progress include Beaudry, Green, and Sand (2012) who develop and estimate a multi-sector model of frictional local labor markets where industrial policies can have complex equilibrium effects on wages and population. However, they do not study the welfare properties of their model. A recent paper by Lutgena and Van der Linden (2012) makes progress in developing a tractable search-matching equilibrium in which searching for a job in another region is possible without migrating. Wrede (2012) uses a search and matching framework to understand the equilibrium relationship between local amenities, wages, rents and unemployment. Manning and Petrongolo (2013) develop a model of neighborhood level search which they use to analyze the impact of various policies on the spatial distribution of unemployment. See also earlier work by Francis (2009), Molho (2001), and Epifani and Gancia (2005) and Boadway et al. (2004).

local productivity level: less productive areas with lower wages should have higher subsidies.

An interesting feature of this result is that place based hiring subsidies are optimal even when workers are perfectly mobile across cities. Relative to a neoclassical environment, the underlying motivation for such subsidies is that workers are not perfectly mobile between unemployment and employment. Search frictions yield rents, which, if split incorrectly, yield inefficient job creation behavior.

Hiring subsidies are a component of many existing place based policies (Neumark, 2013). For example, the California Enterprise Zone program offers tax credits for wages of new hires. The Kline and Moretti results suggest the targeting of less productive areas implicit in these programs may actually have an efficiency rationale.[36]

Hiring costs are not the only sort of cost that can adversely influence the wage bargain and distort job creation. Another example is the presence of firing costs (Lazear, 1990; Bertola, 1990; Kugler and Saint-Paul, 2004; Hafstead, 2012). Although firing costs can be substantial in many European and developing countries, they have been understudied empirically. Their implications for place based policies are an important area for future research.

There are several other possible sources of inefficiency in frictional labor markets, many of which can yield a role for local policies. Gibbons and Katz (1991), for example, propose a simple model of equilibrium unemployment that arises due to adverse selection in the labor market. Acemoglu (2001) develops a two-sector search model with holdup where too few "good" capital intensive jobs are provided in equilibrium, while Acemoglu and Shimer (1999) discuss implications of holdup for efficiency of the mix of jobs under a host of different modeling assumptions. Much work remains to be done embedding these sorts of market failures into spatial equilibrium models. However an even greater priority for future research is demonstrating empirically that these sorts of imperfections are actually present and have an important spatial aspect to them.[37]

3.4 Credit Constraints and Missing Insurance

Credit constraints present another potential market failure that hinders the efficient spatial allocation of labor. While not geographically biased per se, credit constraints can introduce a wedge between the private and social costs of mobility, leading to inefficient adjustment to local shocks (Blanchard and Katz, 1992).

In principle, differences in wages and unemployment rates across metropolitan areas can be arbitraged away by mobile workers. But in practice moving is costly, both because of direct out of pocket expenses involved with relocation, and wage losses incurred by movers while searching for a new job in a new city. Furthermore, uncertainty over the duration of search may require additional precautionary savings. Thus, workers with limited savings

[36]Simple extensions of the model also imply higher amenity areas should receive greater subsidies.

[37]For example Card, Devicienti, and Maida (2013) find that holdup is not quantitatively important in a sample of Italian firms.

and with no access to credit may be forced to stay in low wage / high unemployment areas even when it is optimal for them to move and look for a job elsewhere.

Indeed, observed mobility rates are significantly lower for individuals with a high school education or less than for individuals with a college education or more (Wozniak, 2010; and Malamud and Wozniak, 2012). While many factors may explain this difference, it is possible that access to credit plays a significant role in the reduced propensity of low earners to relocate.

Credit constraints provide a possible justification for government programs aimed at fostering an increase in worker mobility. One concrete intervention that might raise efficiency is the provision of mobility vouchers to residents of areas hit by negative labor demand shocks (Moretti, 2012).[38] Credit constraints may also justify policies aimed at resettling areas vacated in the wake of natural disasters (Gregory, 2013).[39]

Other barriers to mobility may exist, although they are likely to be quantitatively less important. For example, certain groups of workers – especially those with little schooling – may be hindered by imperfect information about job opportunities in other cities. Mobility may also be hindered by tax policies. In California, for example, the adoption of Proposition 13 – a 1978 policy that limited reassessment of property values above the national inflation rate to cases of change in ownership – has been shown to significantly lower geographical mobility rates (Wasi and White, 2005).[40]

A related rationale for place based policies involves missing insurance markets. A substantial component of the price volatility of housing is local. Since housing is the most important asset for most households, the amount of risk generated by these shocks can be large. Unfortunately, existing financial instruments make it difficult to insure against the local component of housing risk. For example, futures in housing prices like the S&P/Case-Shiller Home Price Index Futures are relatively illiquid, have limited geographical scope and possess short time horizons.

Likewise, even when labor markets are perfect and full employment ensues, local labor market shocks can generate significant risk to the labor income of households. In a recent working paper, Yagan (2013) finds that migration and equilibrium price adjustments do not fully mitigate the impact of local labor market shocks on household income, suggesting that substantial demand exists for insurance against local labor market shocks.[41]

[38]The U.S. government already provides a limited relocation allowance as part of Trade Adjustment Assistance, a federal aid program that helps workers who have lost their jobs as a result of foreign trade.

[39]Gregory (2013) studies the resettlement choices of New Orleans homeowners affected by Hurricane Katrina. He proposes a novel approach to identifying credit constraints from data on uninsured repair costs and the timing of resettlement grant payments. He finds that rebuilding grants provided by the Louisiana Road Home program successfully incentivized credit constrained households to return to New Orleans with little efficiency cost.

[40]Obviously, the implications for policy depend on the source of barrier to mobility. In both these examples, mobility vouchers are clearly not the correct policy response.

[41]LaLonde (2007) proposed insuring the wage losses associated with job displacement.

In principle, redistributive countercyclical policies that target localities hit by negative shocks can act as government-provided insurance against housing and labor market risks that are difficult to insure. Currently, there are no government programs that explicitly seek to insure against localized real estate risk,[42] other than specialized programs like flood insurance that insure against natural disasters (see Gallagher, 2013 for an analysis). More common are policies insuring against localized labor market risk. For example, the U.S. unemployment insurance system allows for up to 20 additional weeks of unemployment insurance under the Extended Benefits program in states experiencing high unemployment rates. In the most recent recession of 2008-2011, duration was extended even further in hard-hit states.

Designing optimal policies of this sort is likely to be challenging. Insuring against local risks may generate behavioral responses that yield efficiency costs.[43] For example, extending UI benefits could cause workers to stay unemployed longer than is socially optimal (see, among others, Katz and Meyer, 1990; Card and Levine, 2000; Rothstein, 2011). Likewise, overly generous government protection in the real estate market could create moral hazard and induce homeowners to take excessive risks in their purchasing decisions. A better understanding of the magnitude of these responses is a priority for future research.

3.5 Pre-existing Distortions

The labor, land and capital markets of most countries are characterized by significant policy driven distortions. While most national policies are not explicitly geographically targeted, the distortions that they induce are often spatially heterogeneous. Wedges between the demand and supply of labor may be generated by union contracts, minimum wages, overtime, safety rules, and many other workplace regulations. The resulting distortions can differ vastly across regions. For example, Lee (1999) shows that the binding power of the federal minimum wage in the U.S. varies significantly across states because the distribution of nominal wages is highly heterogeneous.[44] An efficient solution is to remove the initial policy distortion. When this is not feasible because of political or institutional constraints, place based policies have the potential to provide a second best solution.

A major pre-existing distortion is provided by the federal income tax system. Federal taxes and transfers are calculated based on nominal income. By setting taxes in nominal terms, the federal government essentially engages in a hidden form of redistribution of economic activity between areas, because workers with the same real income pay higher federal

[42] Shiller and Weiss (1999) discuss various approaches to the creation of home equity insurance markets but these ideas have not yet seen widespread adoption (Goetzmann et al, 2003).

[43] Particularly in the presence of credit constraints, behavioral responses are not per se a sign of inefficiency. See for example the arguments in Chetty (2008).

[44] Judiciously chosen minimum wages can actually yield Pareto improvements in some frictional models. See, for example, Flinn (2006, 2010). Our point is simply that there is no reason to presume that wages are already at their efficient level nor that subsidies of the sort found in most place based policies move the wage in the wrong direction.

taxes in high cost of living areas than in low-cost areas.

In equilibrium, if workers are mobile, wages and land prices should adjust to compensate workers. However, the resulting geographic distribution of employment is inefficient, since it penalizes highly productive cities and favors less productive cities. The net result is a loss in overall welfare. Albouy (2009) calculates that the long-run employment loss in high nominal wage areas is roughly 13%, while the losses in land and housing values are about 21% and 5%, respectively. The first best solution would be to make taxes independent of where workers live so that they are effectively lump sum location-wise. However, if this is not possible, place based policies that subsidize labor demand in high nominal income areas can provide a second best solution. Note that in this case an offsetting place based policy ends up transferring resources from nominally poor areas to nominally rich areas – precisely the opposite of how most such programs are currently designed.

4 Lessons for Policy and Future Research

As our theoretical discussion makes clear, place based policies involve potentially severe equity-efficiency tradeoffs. Economists have just begun to empirically assess the practical magnitude of these tradeoffs, and how they depend upon program design features and the characteristics of the communities being targeted. Most of what we currently know involves the ability of local subsidies to create local jobs – clearly a useful first step, but ultimately an incomplete assessment of the local and national welfare impacts of interest. Our hope is that future empirical research in this area will be driven by more of a focus on the welfare theoretic issues reviewed in this article.

Though our empirical knowledge is limited, there are a number of policy relevant insights that emerge from our theoretical discussion. First and foremost is that policy makers should be careful to consider the unintended consequences that can arise from worker (and firm) mobility. Subsidizing poor or unproductive places is an imperfect way of transferring resources to poor people. Whether it is more or less imperfect than transfers based on personal or household characteristics is an open question, but a first order consideration of any place based policy should be the mobility response it will generate and the likely consequences of that mobility. As we saw in the idealized model of Section 2, the most efficient demand side subsidy was one that yielded no mobility response at all and simply raised local wages. For this to occur, workers had to be unusually attached to their communities for idiosyncratic reasons – that is, they had to be totally unresponsive to prices.

In reality, households will respond to prices, and policymakers need to factor these responses into their planning process. Mobility responses may lead the local cost of living to change, which in turn can lead landlords, some of whom may not live in the community, to capture some of the benefits associated with a policy. This is more likely when the housing market is already tight or when there are sharp restrictions on building. For this reason,

it may be advisable to target areas with depressed housing markets and high vacancy rates that have enough slack to absorb a demand increase without a large increase in the cost of living.

It also seems advisable to design subsidies that are difficult to arbitrage via mobility. For example, the Empowerment Zone program offered wage credits to firms that were contingent upon the employment of local residents. Because moving to very depressed areas is burdensome, this seems to have induced a limited household mobility response, at least in the short run (Busso, Gregory, and Kline, 2013). It may be possible to design even more stringent eligibility criteria that are easy to enforce and target the desired populations. For example one can imagine a spatially targeted subsidy with, say, a five year residency requirement. Efficient policies would target heavily distressed areas into which outsiders are unlikely to migrate.[45] Yet even when subsidies are designed carefully, they need to be assessed relative to the potential effectiveness of person based alternatives such as the EITC.

A potentially compelling case for place based policies can be made based upon the remediation of localized market imperfections. When private and social returns diverge, local governments may be able to raise the welfare of their residents by re-aligning private incentives through taxes or subsidies or the provision of local public goods.

However, the presence of localized market imperfections does not, in itself, imply that spatial targeting is necessarily socially desirable. While place based policies may be welfare enhancing for the target community they may be welfare reducing for the nation as a whole. Before devoting resources to such programs, national policy makers should compare the welfare benefits enjoyed by the target locality to the cost of welfare losses in the localities from which economic activity is diverted.

For instance, the presence of agglomeration economies does not imply that every state or country should attempt to generate a Silicon Valley equivalent from scratch via spatially targeted subsidies.[46] In the case of manufacturing, the productive advantages of concentration appear to be rival (Kline and Moretti, forthcoming), meaning that little is to be gained from redistributing economic activity from areas with dense manufacturing bases towards less developed areas (or vice-versa). Whether other sectors exhibit equivalent behavior is an important open question.[47] But at this time, economists do not have enough information to reliably suggest strategies that can raise aggregate welfare via agglomeration forces.

Perhaps the most obvious areas where place based policies can raise efficiency is in offsetting clearly distortionary prior policies. For example, the spatial bias in income taxes

[45]Ideally one would like to develop objective "tags" (Akerlof, 1978) based upon immutable characteristics that signal which distressed places are likely to be poor substitutes for other areas. This might involve characteristics of the physical environment such as the spatial isolation measures considered by Briant et al. (2013).

[46]See Bresnahan, Gambardella, and Saxenian (2001) for a discussion of the factors leading to the emergence of successful tech clusters.

[47]Particular attention should be given to evaluating programs that seek to build high tech clusters, an increasingly popular form of place based policy in the U.S. and abroad.

(Albouy, 2009) and the existence of important labor market rigidities can justify offsetting spatially targeted policies. In an ideal world, efficiency would be achieved by directly removing existing distortions. But this is not always feasible, politically, institutionally or technologically. Therefore, second best may, in practice, be very attractive relative to the status quo.

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Table 1: Yearly State and Local Governments Incentives, by State

State	Yearly Amount (millions)	State	Yearly Amount (millions)
Alabama	277	Montana	101
Alaska	704	Nebraska	1,390
Arizona	1,470	Nevada	33
Arkansas	431	New Hampshire	39
California	4,170	New Jersey	678
Colorado	995	New Mexico	253
Connecticut	860	New York	4,060
Delaware	431	North Carolina	660
DC	93	North Dakota	33
Florida	3,980	Ohio	3,240
Georgia	1,400	Oklahoma	2,190
Hawaii	262	Oregon	865
Idaho	338	Pennsylvania	4,840
Illinois	1,510	Rhode Island	356
Indiana	921	South Carolina	896
Iowa	223	South Dakota	28
Kansas	1,010	Tennessee	1,580
Kentucky	1,410	Texas	19,100
Louisiana	1,790	Utah	207
Maine	504	Vermont	407
Maryland	554	Virginia	1,290
Massachusetts	2,260	Washington	2,350
Michigan	6,650	West Virginia	1,570
Minnesota	239	Wisconsin	1,530
Mississippi	416	Wyoming	90
Missouri	97		

Notes: Data are from Story, Fehr, and Watkins (2012). Entries give the total annual accounting cost of incentives including cash grants, corporate income tax credits, sales tax exemptions or refunds, property tax abatements, low-cost loans or loan guarantees, and free goods and services (like worker training or below market electricity or infrastructure improvements). Opportunity costs of factors of production are not included. Entries for different states in some cases refer to data from different years.