Recent Immigration and Economic Outcomes in Rural America

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June 23, 2008
Forthcoming *American Journal of Agricultural Economics*
December 2008

Abstract: This paper assessed how recent immigrant flows have affected non-metropolitan county labor market outcomes over the 2000-2005 period. We find the largest impact to be increased net out-migration of natives in the more remote rural counties. Dramatically less out-migration of natives occurred in manufacturing-dependent counties, which also experienced reduced employment rates suggesting greater job queuing. Immigration was positively associated with net migration in persistently high-poverty counties. Given the general absence of statistically significant adverse impacts on other labor market outcomes in these counties, it is possible that immigration helps to revitalize persistently high-poverty counties, although point estimates suggested out-migration may have been insufficient to equalize real wages.

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International immigration to the United States ebbed and flowed during the 20th century (Gibson and Lennon 1999). After peaking at 14.8% in 1890, the percentage of foreign-born residing in the United States fell to 4.7% in 1970, slowly rising to 7.9% in 1990. However, since then, the share of foreign-born accelerated to 12.5% in 2006 (U.S. Census Bureau, American Community Survey 2006). The recent surge in immigration has provoked a heated debate regarding whether immigration is "good" or "bad" for American communities and workers (Borjas, Freeman, and Katz 1996; Saiz 2003).

Immigration to rural America has historically been much lower than that for urban areas, most likely due to beachhead effects and the likelihood of better job matches in urban areas. Using 2003 metropolitan area definitions, 1990 Census of Population data suggests that about 9.3 percent of metropolitan population was foreign-born, while the non-metropolitan share was only about 1.8 percent (U.S. Census Bureau, 1990 Census, 2008). By 2006, the American Community Survey indicates that these shares had

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respectively risen to about 15.4 percent and 4.9 percent. In relative terms the metro share increased by about 66 percentage points, and the non-metropolitan share increased by 172 percentage points.

Despite the relative increase in rural immigration, most related studies have focused on states or metropolitan areas (e.g., Card 2000; Borjas 2005). Another shortcoming of past research is that despite the public and media attention on recent immigrants, most regional studies consider all immigrants as a group, including long-standing U.S. citizens (e.g., Card 2000; Borjas 2003, 2005). Indeed, as noted above, rural immigrants are disproportionately recent immigrants.

Although rural America has generally been ignored, many immigration studies have been conducted at the regional level to take advantage of significant geographic variation. Yet, estimates of the local effects of immigration vary widely. One reason is that immigrants may be attracted to the most rapidly growing places, which would create a positive correlation between immigration rates, wages, and job growth.

Another reason that the influence of immigrants is hard to assess is the possibility that current residents can relocate in response to influxes of immigrants. Offsetting resident migration of equal magnitude causes immigration to have no net impact on total labor supply and then no net impact on job growth or wages (Frey 1995; Borjas, Freeman, and Katz 1996). Yet, many other studies such as Card and DiNardo (2000) found little offsetting out-migration.

An unexplored aspect is differing spatial responses. Responses may differ because of variations in factors such as the sense of local attachment, industry structure, and

demographic composition. Further, because of the large proportion of immigrants lacking a high school degree, they most intensely compete with low-skilled natives who are more prevalent in certain areas. Excess durable housing in declining areas may attract both native and immigrant low-skilled labor (Glaeser and Gyourko 2005), which means there would be less offsetting native out-migration in response to immigration.

Illustrating regional diversity, Partridge et al. (2008) found that the local population share of recent immigrants had larger impacts on non-metropolitan job growth than on metropolitan growth. They suggest that immigrants may be associated with enhanced critical mass, in which the increased agglomeration effects better support rural job growth. Likewise, the agri-business and manufacturing nature of many rural economies may be more complementary to the skills of many recent immigrants, producing more favorable economic impacts on these communities.[1] Such diverse effects may underlie why political and business support for immigration can vary greatly across regions.

Therefore, this study examines the effects of immigration during 2000-2005 on non-metropolitan county labor market outcomes over the same period including: net internal migration, wage growth, the employment rate, and median housing rents. In examining these effects, a primary focus is the net out-migration response of domestic-born residents (and of longer-term immigrants). Besides potential spatial differences in effects, our econometric approach also addresses statistical issues related to endogeneity. In this assessment we employ the following instruments for recent immigration: the shares of the foreign-born in 1970 and 1980 and median housing costs in 1970.

Theory of Immigration and Local Labor Markets

Our model for how immigration affects local labor market outcomes follows Borjas (2003, 2005), which is consistent with how regional economists view local labor market dynamics. The key feature is that increases in labor supply—whether from foreign or domestic sources—reduce local wages. The decline in wages induces net out-migration until wages (or utility levels) are equalized across locations and the long-run equilibrium is restored. Thus, assuming domestic and immigrant labor are close substitutes, an influx of international immigrants produces a correspondingly equal net out-migration of domestic workers and past immigrants. In the medium to long-term, the offsetting out-migration implies that local wages are not affected, unemployment (or employment) rates are unchanged, and long-term population growth is unaltered.

Aside from domestic worker out-migration, the local labor market would then appear to be unaffected by surges in recent immigrants. Borjas' model can explain why past studies tend to find that influxes in immigration tend to have little impact on local labor markets (e.g., Card's (1990) study of the influence of Mariel Boatlift on Miami). Indeed, Borjas, Freeman, and Katz (1996) and Partridge and Rickman (2006) find almost one-for-one offsetting domestic out-migration in response to new immigrants when considering local labor markets. It should be noted though that while local labor markets may not seem to be *relatively* affected by immigration, Borjas (2003) finds that a ten percent increase in labor supply from immigration reduces *national* wages by three to four percent. The net out-migration of domestic workers "spreads" the labor market effects of immigration across the country until spatial equilibrium is restored.

Because of our focus, one difference from Borjas' approach is that we focus on recent immigrants rather than the total stock of immigrants. The longer that an immigrant remains in the country, the more likely she/he is to assimilate into the labor market because she/he better learns the language and culture and receives specific training. Another difference is that our model allows for the possibility that immigrants can "improve" rural labor market outcomes because of favorable net agglomeration effects.

Following Borjas (2005), we write labor demand for location *i,* period *t* as:

(1) $w_{it} = \boldsymbol{X}_{it}\boldsymbol{L}^{\eta}_{it}, \quad \mathbf{L}_{it} = \mathbf{M}_{it} + \mathbf{N}_{it},$

where *w* is the average wage in location *i*, and **X** is a demand shifter. We allow labor demand to be affected by total labor force size to account for agglomeration economies ($X(L, .), X_L > 0$). The elasticity of labor demand is η, and **L** is the total labor supply composed of **M** and **N**, which are respectively the stocks of new immigrants and natives. We treat past immigrants as part of the native stock after a sufficient lapse of time.

If immigrants push wages in Equation (1) below those found in other regions, there would be some offsetting migration flows of natives. Net domestic migration at location *i* is a positive function of the difference between local wages w_{it} and the national equilibrium wage w^*_{t-1}:

(2) $\Delta\mathbf{N}_{it}/\mathbf{N}_{it-1} = v_{it} = \sigma(w_{it-1} - w^*_{t-1}),$

where σ is the labor supply elasticity. Migration is assumed to respond to wage differentials after a lag due to moving costs.[2] The period of time that we will consider is sufficiently long such that almost all such migration should be completed.

Solving equations (1) and (2) leads to expressions in which local wages and net

migration are reduced-form functions of immigrant inflows. Borjas (2005) shows that as the local market approaches a new long-run equilibrium, net domestic migration entirely offsets new immigrants, with wages fully returning to the initial level w*. In the interim if supply adjusts sluggishly, influxes of migrants may increase the local unemployment rate and reduce local wages and the employment rate (employment/population).

These labor market effects are also related to changes in housing costs. To the extent that costs increase in response to new immigrants, real wages of previous residents may decline, especially for those who rent rather than own, causing out-migration. Thus, prospective in-migrants may be crowded out by higher housing costs. This modifies (2) to be in real wages. The more inelastic the supply of housing, the greater is the housing cost response, and the greater is the expected net out-migration of original residents from 2000. Saiz (2007) finds that immigration equal to 1% of metropolitan area (MSA) population increases MSA housing values and rents by about 1%, which he contends is a larger real wage effect than when considering nominal wage changes.

By allowing for potential agglomeration economies, one difference between Borjas' predicted results and ours is that agglomeration economies could mean that local wages are only modestly depressed below w* after an influx of immigrants. Thus, fewer natives would out-migrate to restore equilibrium.[3] If congestion effects are more limited in rural economies while agglomeration economies increase (at a decreasing rate), rural areas would likely have a smaller out-migration response to immigrants than in MSAs (for supporting evidence, see Partridge et al. 2008).

If recent immigrants are not close substitutes with longer-term residents, this

could lead to further deviation from Borjas's results. Indeed, Peri (2007) argues that immigrant and native labor are complements, implying that immigrant in-flows could potentially raise wages of native workers. Again, this would imply that surges in immigrants may not produce offsetting out-migration of natives, and local wages may even increase.

Empirical Implementation

Our units of analysis are U.S. non-metropolitan counties as defined by the U.S. Office of Management and Budget in 2003.[4] We examine the effects of immigration on several labor market indicators for the period 2000-2005, using a sample of all non-metropolitan counties and several sub-samples to examine spatial heterogeneity in effects. When germane, the explanatory variables are defined at their lagged 1990 values to mitigate endogeneity concerns. The change in the labor market indicator (Y) for county *i* over the period is a function of a vector of location-specific fixed or pre-determined factors (X), immigration over the period (Immigrant), state fixed effects ($\boldsymbol{\sigma_s}$), and a stochastic term (ε):

$$(3) \qquad Y_{i,00\text{-}05} = \alpha + \boldsymbol{\gamma X}_i + \beta \text{Immigrant}_{i,00\text{-}05} + \boldsymbol{\sigma_s} + \varepsilon_i.$$

The labor market indicators include net internal migration over the period as a percent of the beginning population level as reported by the U.S. Census Bureau, the change in the Bureau of Labor Statistics (BLS) employment rate, the percent change in Bureau of Economic Analysis (BEA) wage growth, and the percent change in the median fair market rent of two-bedroom apartments by the U.S. Department of Housing and Urban Development (HUD).

The fixed location-specific factors include natural amenities as measured by an amenity scale constructed by the U.S. Department of Agriculture (USDA) based on climate, topography, and percent water area. To control for market threshold and urban hierarchy effects on labor market outcomes, fixed factors also include distances between the population-weighted centroids of the county and the nearest MSAs of various population thresholds (Partridge et al. 2008). Specifically, the variables are: the distance to the nearest MSA of any size; the incremental distance to the nearest MSA containing at least 250 thousand people; the incremental distance to the nearest MSA containing at least 500 thousand people; and the incremental distance to the nearest MSA containing at least 1.5 million people.[5]

We also include the 1990 Census of Population employment shares comprised of agricultural, manufacturing, and mining jobs. Likewise, we include the 1990 educational attainment shares among the adult population. To control for potential labor market disequilibrium effects, we include the following pre-determined variables: the 1990 population level for net internal migration; 1990 total employment for the change in the employment rate; 1990 per capita income for wage growth; and 1990 fair market rent for the change in housing rents. State fixed effects (σ_s) control for common statewide effects, such as state fiscal and regulatory policies. Descriptive statistics of major variables by all non-metro and sub-samples appear in table 1.

Immigrant is the net in-migration of the foreign-born over the 2000-2005 period as a percent of the year 2000 population level. A primary econometric concern is that the imigrant variable may be endogenous. For example, if immigrants chose to locate in

areas with strong growth in labor demand, the ordinary least squares (OLS) estimate of immigration effects on net internal migration would be biased upwards. Thus, in addition to ordinary least squares estimation of (3), we also estimate it using instrumental variables (IV), in which the identifying instrumental variables for immigration are the 1970 and 1980 population shares which were foreign-born and 1970 median housing costs.[6] To assure the validity of our instruments, we perform both a weak instruments test based on the critical values provided by Stock and Yogo (2005) and Sargan's over-identification test.

We estimate (3) for all non-metropolitan counties and for key sub-samples of counties. For example, remote rural counties may be influenced differently than urban areas and by their proximity to urban areas. An influx of recent immigrants may have fewer adverse effects in rural areas adjacent to MSAs because the previous residents could potentially commute to urban areas for work, and the immigrants may displace *some* of the (domestic) in-migration that would have occurred otherwise, which would mitigate any effects on original residents. In such a setting we would expect immigration to be associated with fewer harmful impacts on labor market outcomes.

In more remote rural areas, however, a surge in recent immigration may create more adverse effects because the original residents have fewer nearby out-commuting opportunities (especially to urban areas). The original residents would be more likely to out-migrate (unless there are offsetting agglomeration effects through greater critical mass). Thus, recent immigrants would be associated with greater out-migration. To assess the outcome on balance, we examine a subset of rural counties which are located at a

distance greater than 100 kilometers from the centroid of its nearest MSA.

Because of potentially differential effects based on industry composition, we also separately examine the sub-samples of farm-dependent and manufacturing-dependent counties as classified by Economic Research Services of USDA. To the extent immigrants take agricultural jobs that otherwise would go unfilled, the effect of immigration would be more muted in farm-dependent counties. Likewise, if low-skilled immigrants are complementary to skilled natives in manufacturing, there would be less job competition and less net out-migration of natives.

We also separately examine the effects of immigration on counties that have had persistently high poverty rates. Lower commuting and migration responses to immigration in these counties (Partridge and Rickman 2007) may create greater adverse effects on other labor market outcomes. Yet, immigration may help revitalize their otherwise stagnant economies.

Empirical Results

The empirical results for the entire sample and sub-samples are shown in table 2. For each sample the first line contains the OLS estimates of immigration's effects on the respective dependent variables and its absolute value t-statistics (in parentheses). The next line contains the IV estimates and its t-statistics, while the third line shows the results of an F-test of the joint significance of the urban hierarchy distance variables in the IV regression. The fourth line contains the Cragg-Donald Wald F-statistic for the weak instruments test of Stock and Yogo (2005). Statistical significance based on the Stock-Yogo critical values indicates the instruments are strong. The fifth line reports the

Sargan statistic and its significance in the test for over-identification. An insignificant statistic indicates that the instruments can be treated as exogenous. The sixth line for each sample reports the centered R^2 for the estimated second-stage IV regression.

The OLS estimates for the entire non-metropolitan county sample suggests that immigrants lead to net out-migration of natives but not of sufficient magnitude to prevent the employment rate from decreasing. Nominal wage rates are predicted to decrease, although the result is statistically insignificant. Housing rents are predicted to significantly increase, leading to a reduction in the real wage rate.

The IV estimates paint a different picture. These estimates suggest that there is sufficient net out-migration of natives to more than offset the new immigrant supply, which offsets any adverse impacts of immigration on the local employment rate or the local real wage rate. The instruments pass the weak instruments test in each regression and only fail the over-identification test in the employment rate equation, although these IV estimates are consistent with the bias corrections in the other three equations. The estimated negative effect on housing rents might be attributable to a change in the composition towards lower cost rental units because of immigration (Saiz 2007). The distance effects are jointly significant in the net internal migration and housing rent equations.

The IV results for rural counties suggest a slightly greater net out-migration response and slightly less reduction in housing rental costs in which the instruments pass all tests in all regressions. The difference becomes more pronounced for the most remote rural counties (>100km). More remote counties experience greater net out-migration of

natives, likely because of fewer commuting opportunities. The impact on housing costs is now insignificant, while the nominal wage effect is now negative, although insignificant.

Net out-migration IV responses of natives are slightly lower in farm-dependent counties and about one-half of the overall non-metropolitan response in manufacturing-dependent counties. This suggests there may be greater complementarity in production between immigrants and natives in these counties. Yet, the employment rate significantly declines in manufacturing counties, possibly suggesting some queuing for relatively better paying manufacturing jobs in which there may be competition with previous immigrants (or native-born). There is no evidence of real wage effects in either sample.

Finally, for persistently high-poverty counties the net internal migration response is positive and significant at the ten percent level. Perhaps recent immigrants added sufficient economic vitality, altering local area dynamics. The effect on the employment rate is insignificant; while using the point estimates, the real wage effect is slightly negative, assuming that renters spend about 25 percent of their income on rent (Saiz 2007), weakly consistent with the lack of out-migration of natives.

Conclusion

This paper assessed how recent immigrant flows have affected non-metropolitan county labor market outcomes over the 2000-2005 period. Based on IV estimates, we find the largest impact to be increased net out-migration of natives, which generally mutes the adverse impact of immigration on real wages and employment rates. These contrasted with OLS estimates, which suggested net out-migration of insufficient magnitude to restore the previous employment rate and real wage.

We found greater net out-migration in the more remote rural counties, likely because of fewer commuting opportunities. Dramatically less out-migration of natives occurred in manufacturing-dependent counties, which also experienced reduced employment rates. This pattern suggests greater job queuing, in which non-employed workers queued up to take potentially "good" manufacturing jobs. Immigration was positively associated with net migration in persistently high-poverty counties. Given the general absence of statistically significant adverse impacts on other labor market outcomes in these counties, it is possible that immigration helps to revitalize persistently high-poverty counties, although point estimates suggested out-migration may have been insufficient to equalize real wages. Future research could more systematically examine spatial heterogeneity in responses, including differing impacts at alternative levels of geographic aggregation.

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Table 1. Mean and Standard Deviations (in parentheses) of Major Variables by Sub-Samples

Variable	Description	Non-MA	Noncore Rural	Rural >100 km MA	Farm-depend.	Mft.-depend.	Persistent poverty
Internal migration	Net internal migration over 2000-05 as percent of 2000 pop	-0.78 (5.38)	-1.09 (5.30)	-3.13 (4.92)	-3.80 (5.11)	0.88 (5.07)	-2.61 (4.22)
Change in emp. rate	Change in BLS employment rate over 2000-2005	0.004 (0.03)	0.006 (0.03)	0.013 (0.04)	0.013 (0.04)	-0.012 (0.02)	0.004 (0.03)
% change in wage	Percent change in BEA wage rate over 2000-05	19.10 (7.25)	19.82 (7.63)	21.45 (8.62)	22.77 (7.72)	15.95 (6.32)	20.05 (6.65)
% change in house rent	Percent change in HUD fair mkt rent for two-bedrooms ($/month)	16.64 (11.30)	16.04 (11.52)	15.69 (10.95)	15.70 (11.17)	17.73 (10.34)	13.05 (11.47)
% population growth	Percent change in estimated population over 2000-05	0.06 (5.53)	-0.82 (5.46)	-3.00 (5.20)	-3.05 (6.27)	2.46 (5.69)	-0.58 (4.84)
Immigrant	Net international migration over 2000-05 as percent of 2000 pop	0.54 (0.94)	0.42 (0.77)	0.41 (0.84)	0.69 (1.32)	0.63 (0.97)	0.54 (0.98)

% foreign-born 1970	Foreign-born population in 1970	8.14	8.41	11.65	11.84	5.67	4.34
	Census as percent of 1970 pop	(8.47)	(8.71)	(9.05)	(9.58)	(7.02)	(9.22)
House rent 1970	Wtd average owner & renter	67.19	62.56	62.71	60.12	75.98	53.78
	occupied house rent ($/month)	(18.73)	(16.86)	(18.12)	(13.86)	(21.74)	(13.84)
% foreign-born 1980	Foreign-born population in 1980	1.62	1.46	1.79	1.82	1.28	1.77
	Census as percent of 1980 pop	(2.24)	(1.73)	(1.93)	(2.35)	(1.39)	(4.02)
Dist to nearest MSA	Distance (in km) between county	96.47	103.33	162.79	131.64	54.44	82.54
	and its nearest MSA	(58.13)	(61.42)	(59.53)	(79.62)	(37.08)	(42.15)
Inc dist to MSA>250k	Incremental distance to the	66.80	76.08	98.07	133.46	28.97	51.71
	nearest MSA with >250,000 pop	(106.20)	(115.21)	(140.73)	(154.44)	(39.61)	(93.45)
Inc dist to MSA>500k	Incremental distance to the	42.89	45.35	43.53	40.79	35.76	51.24
	nearest MSA with >500,000 pop	(66.07)	(68.98)	(68.73)	(64.73)	(55.61)	(62.47)
Inc dist to MSA>1.5mil	Incremental distance to the	89.03	83.52	84.03	100.38	97.81	144.47
	nearest MSA with >1.5 mill. pop	(111.10)	(106.26)	(107.86)	(121.51)	(115.04)	(136.60)
No. counties		1,972	1,299	499	415	892	373

Notes: BLS=Bureau of Labor Statistics, U.S. Department of Labor; BEA=Bureau of Economic Analysis, Regional Economic Information Service; HUD = U.S. Department of Housing and Urban Development; and MSA=Metropolitan Area following 2003 definitions. Percent foreign-born 1970, 1980 and house rent 1980 are from GeoLytics data.

Table 2. Empirical Results of Labor Market Outcomes Due to Immigration

Sub-samples and regression diagnostics	Net Internal Mig./Pop	ΔEmp.Rate '00-'05	%ΔWages '00-'05	%ΔHousing Rent '00-'05
Nonmetro. (N=1972)				
Immigration-OLS	-0.76 (6.74)	-0.01 (6.21)	-0.24 (1.35)	0.58 (2.28)
Immigration-IV	-2.29 (6.03)	0.001 (0.50)	0.59 (1.01)	-2.09 (2.55)
Distance F-stat.-IV	132.3***	3.54	3.52	70.24***
Weak Inst. Wald F	66.10[a]	63.67[a]	63.78[a]	68.81[a]
Sargan Over Id.	0.01	7.81**	3.38	1.70
R^2	0.37	0.29	0.22	0.32
Rural (N=1299)				
Immigration-OLS	-0.54 (3.38)	-0.004 (3.13)	0.26 (0.91)	-0.51 (1.35)
Immigration-IV	-2.68 (5.91)	0.004 (1.06)	0.98 (1.25)	-1.88 (1.91)
Distance F-stat.-IV	93.49***	0.99	7.85*	55.74***
Weak Inst. Wald F	65.67[a]	62.81[a]	61.02[a]	67.65[a]
Sargan Over Id.	0.71	4.39	2.97	1.42
R^2	0.40	0.29	0.21	0.38
Rural >100km (N=499)				
Immigration-OLS	-0.92 (3.73)	-0.01 (2.53)	-0.03 (2.53)	-0.52 (0.95)
Immigration-IV	-3.68 (5.50)	0.002 (0.46)	-0.08 (0.46)	-1.63 (1.27)
Distance F-stat.-IV	15.73***	7.00	7.92*	6.29
Weak Inst. Wald F	27.84[a]	26.83[a]	24.81[a]	29.01[a]

Sargan Over Id.	0.07	2.17	1.52	1.53
R^2	0.32	0.39	0.23	0.48
Farm (N=415)				
Immigration-OLS	-0.75 (3.64)	-0.01 (3.40)	-0.19 (0.56)	0.03 (0.08)
Immigration-IV	-2.11 (3.79)	-0.005 (1.16)	-0.79 (0.83)	-1.55 (1.49)
Distance F-stat.-IV	23.38***	0.83	1.80	15.91***
Weak Inst. Wald F	19.58[b]	19.19[b]	16.79[b]	20.35[b]
Sargan Over Id.	1.35	3.66	3.54	0.05
R^2	0.33	0.37	0.28	0.49
Manufacturing (N=892)				
Immigration-OLS	-0.52 (2.77)	-0.001 (0.80)	0.24 (0.90)	0.97 (2.36)
Immigration-IV	-1.09 (1.68)	-0.01 (2.17)	-0.01 (0.02)	0.63 (0.48)
Distance F-stat.-IV	89.99***	16.83***	5.17	44.55***
Weak Inst. Wald F	23.89[a]	21.44[b]	26.302[a]	27.62[a]
Sargan Over Id.	4.73*	5.16*	0.65	5.80*
R^2	0.37	0.31	0.19	0.27
Persistent Poverty(N=373)				
Immigration-OLS	0.36 (1.48)	-0.000 (0.01)	-0.21 (0.48)	-0.54 (0.82)
Immigration-IV	0.93 (1.90)	0.002 (0.60)	-1.23 (1.47)	-3.02 (2.35)
Distance F-stat.-IV	38.75***	8.19***	5.35	21.49***
Weak Inst. Wald F	32.03[a]	30.78[a]	36.59[a]	35.48[a]
Sargan Over Id.	0.04	4.20	1.21	2.15

R^2	0.40	0.32	0.21	0.39

Notes: absolute value of t-statistics are in parentheses; ***, **, *, denote significant at the .01, .05, and .10 levels, respectively; [a] indicates exceeds Stock and Yogo (2005) critical values for bias reduction to no more than 5% of the OLS estimates and exceeds the critical value for 10% maximal IV size distortion, while [b] indicates the same for bias reduction but only exceeding the critical value for 15% maximal IV size distortion.

Footnotes

[1]Immigration's role on agriculture labor markets is a long-standing issue (Thilmany 1996).

[2]It is more common to model net migration as a function of utility differentials across regions to allow for amenities in the migration decision. Empirically, we allow amenities to affect labor market outcomes.

[3]We are assuming that any agglomeration economies are not sufficiently strong to overwhelm the negative labor demand elasticity η.

[4]Population used by OMB in the definitions is from Census 2000. The definitions are from http://www.whitehouse.gov/omb/bulletins/b03-04.html, accessed on April 17, 2008.

[5]If the nearest metropolitan area is over 1.5 million, all incremental distance variables equal 0. The same principle applies to the calculated incremental distances if the nearest metropolitan area in the next higher tier is of a yet higher tier.

[6]These were obtained from the 1970 and 1980 Censuses of Population. We also experimented with GIS distances to various immigrant gateway communities, but these generally did not pass the instruments tests.