**Title:** Developing measures of Asian American and Hispanic/Latino ethnic enclaves for five states using U.S. Census and American Community Survey data

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Suggested citation: Shariff-Marco S, Lin K, Meltzer D, Allen L, Boscoe F, Canchola AJ, Gates Kuliszewski M, German S, Guan A, Harris G, Henry K, Hiatt RA, Hughes AE, McGuire V, Oh D, Paddock LE, Pinheiro PS, Radadiya HR, Reyes S, Stroup A, Zhu H, Gomez SL, Pruitt SL. Developing measures of Asian American and Hispanic/Latino ethnic enclave for five states using U.S. Census and American Community Survey data. University of California San Francisco, San Francisco, CA; October 2021. Online available at: https://cancerregistry.ucsf.edu/resources/research-tools.

**Funding:** R01CA237540-01A1 (MPIs: Salma Shariff-Marco, PhD (contact PI); Sandi Pruitt, PhD), Ethnicity and Nativity in Cancer – Latino & Asian Enclaves: The ENCLAVE study

### For more information:

The online dashboard showing the measures described in this report is available here: https://cancerregistry.ucsf.edu/enclave.

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### I. Objectives of the Study

Hispanic/Latino and Asian American populations are among the fastest growing populations in the U.S.<sup>1-4</sup> By 2060, more than one quarter of the U.S. population will be Hispanic/Latino and nearly one in ten will be Asian American (AA).<sup>4</sup> A large proportion of Hispanic/Latino and AA residents in the U.S. live in ethnic enclaves—distinct neighborhoods with high concentrations of individuals of the same ethnic origin ("co-ethnic residents") that are often characterized by recent immigration, linguistic isolation, ethnic businesses and resources, and disproportionate poverty.<sup>5-9</sup>

Ethnic enclaves are neighborhood environments hypothesized to contribute to outcomes across the cancer continuum through multiple pathways, some positively and some negatively. Co-ethnic residents within enclaves often maintain lifestyles, cultural norms, and behaviors (e.g., diet and physical activity, social networks, social cohesion) that are health-promoting. Enclaves may facilitate communication and information sharing due to greater access to linguistically concordant resources, including a higher percentage of residents who speak languages other than English and the presence of businesses and /or community organizations providing services and resources using languages other than English. Enclaves may also improve health by reducing or buffering exposure to racism and discrimination, which are linked to unhealthy coping behaviors (e.g., smoking, drinking), psychological responses such as stress, maladaptive physiological responses, and lower individual and collective resilience.<sup>10-15</sup> In contrast, socioeconomic and structural features of enclaves may contribute to unhealthy behaviors and worse health through pathways associated with low SES such as low walkability (resulting from high traffic density, poor street conditions, and low safety), poor food environments (with high concentrations of fast foods, tobacco outlets or liquor stores), or environmental hazards (poor air quality, proximity to toxic waste/landfills).

Cancer is the top cause of death among Hispanic/Latino and AA populations; yet it is generally unknown whether and how enclave residence may play a role in shaping cancer outcomes. There is no gold standard method to define ethnic enclaves and use of different measures and methods is one potential explanation for the mixed findings in the published literature about the association between enclave residence and cancer outcomes. Two reviews on the impact of ethnic enclave residence and outcomes across the cancer continuum demonstrate inconsistent associations for breast, cervical, and colorectal cancer (CRC). These three cancers have established evidence for effective early detection practices and are the focus of the ENCLAVE study (Ethnicity and Nativity in Cancer - Latino & Asian Enclaves).<sup>5,6</sup> The ENCLAVE Study (R01CA237540-01A1; MPIs Shariff-Marco and Pruitt) will pool cancer registry data across 5 states (CA, FL, NJ, NY and TX) containing the majority of these populations and link to contextual data to determine which patients live in ethnic enclaves. We will study the relationship among ethnic enclaves, patient nativity (U.S.- or foreign-born) and cancer incidence, stage at diagnosis, and survival for three cancer types (breast, cervix, colorectal) for Asian American and Latino populations, with attention to the 9 major ethnic groups (Cuban, Mexican, Puerto Rican, Chinese, Filipino, Japanese, Korean, South Asian and Vietnamese). Here we report on the development of multidimensional ethnic enclave measures at the census tract level for Asian American and Hispanic/Latino communities.

### II. Methods for 5-State Pooled Ethnic Enclave Measures

We used data from the U.S. Census 2000 Summary File 3 (tables P6, P7, P19, P20, PCT63D, PCT63H) and the 2008-2012 American Community Survey (tables B02001, B03002, B06004D,

B06004I, B16002, B16005) to develop census tract measures for 2000 and 2010 geographies. We started with a broad set of variables that were previously applied in the ethnic enclave literature (see Appendix A). We noted that some variables were defined generally, without regard to specific race/ethnicity nor country of origin. For example, previous studies often measured the percent of census tract residents that were foreign born, without regard to country or region of birth. To ensure that our measures were relevant to our populations of interest, we opted to apply more specific measures relevant to each racial/ethnic group—these included % of residents Asian American or Hispanic/Latino, % of residents foreign-born Asian American or Hispanic/Latino, % of residents with limited English speaking Asian/Pacific Islander (API) languages or Spanish language, % of linguistically isolated households speaking API languages or Spanish language.

For both 2000 and 2010, we performed a principal components analysis (PCA) using 4 individual variables (hereafter variables) for each enclave measure (Asian American, Hispanic/Latino) pooling data across the 5 states in the ENCLAVE study. PCA is a data-driven data reduction technique aimed at reducing variables into a composite measure(s) while retaining as much of the variance in the data as possible. Each created component is a linear combination or weighted average of the variables. The first component is optimally weighted so that it accounts for the maximum amount of variance in the data. The second component accounts for the maximum variance not accounted for in the first component while being uncorrelated with the first component, etc. The eigenvalue of each component gives the amount of variance accounted for by the component out of the total variance. The decision of how many components to retain can be based on project goals as well as the variance explained, plots, and eigenvalues >=1. Eigenvector values for each variable reflect the weight assigned to each component variable in the linear combination.<sup>16</sup> In the ENCLAVE study, the goal was to develop a single measure, thus the analysis in this report and the future studies is focused on only the first component. Census tracts with small numerator counts were suppressed by Census and those with zero population or household denominator counts were excluded because composite measures could not be calculated (see Appendix B). We report the following PCA results: Eigenvalue, percent of variance explained, eigenvector values.

We categorized ethnic enclaves using the 5-state pooled data (hereafter "pooled" data) in two ways: quintiles and a dichotomous measure. Quintiles were used to identify less culturally/ethnically distinct neighborhoods from more culturally/ethnically distinct neighborhoods. In addition to quintiles, we also developed a dichotomous measure to categorize census tracts as ethnic enclave or non-enclave neighborhoods. Census tracts were classified as enclaves if they met either of the following criteria: 1) quintile 5 with >250 residents of the respective racial/ethnic group (Asian American or Hispanic/Latino); or 2) quintile 4 with >250 residents of the respective racial/ethnic group (Asian American or Hispanic/Latino) and spatially adjacent to a quintile 5 enclave census tract. On average, census tracts have 4,000 residents and 250 is approximately 6% reflecting the national percent of Asian American residents in the U.S. Census tracts were considered spatially adjacent following the Queen's definition of adjacency, i.e., when one or more points of a census tract boundary touch one or more points of another census tract boundary.

Appendix C reports on methods and results for state-specific indices.

### III. Results of 5-State Pooled Ethnic Enclave Measures

Results from the pooled PCA are shown below in Tables 1 and 2. The eigenvalue for the first component gives the amount of variation accounted for by the first component, out of a total variation of

4. Because our goal was to define one ethnic enclave measure and because the percent of variation explained by the first component was high (for both Asian Americans and Hispanic/Latino and both years), we retained only the first component as our enclave measure. The eigenvector values for the first component across the 4 variables were similar (for both Asian American and Hispanic/Latino enclaves and for both years), which means the 4 variables were relatively equally weighted in the linear combination.

Table 3 shows the enclave indices distribution by state. Across all states, approximately 25% of census tracts were identified as Asian American enclaves and 31% of census tracts were identified as Hispanic/Latino enclaves. California had the highest proportion of Asian American enclaves and Florida had the lowest. California followed by Texas had the highest proportion of Hispanic/Latino enclaves. Tables 4 and 5 show the distributions of the 4 variables included in the respective Asian American and Hispanic/Latino ethnic enclave indices/measures by year and state. Proportions in Q5 and enclaves were fairly consistent across states. Asian American enclaves had a higher proportion of foreign-born residents (68% of Asian American residents in Asian American enclaves were foreign-born in 2000 and 66% in 2010) than Hispanic/Latino enclaves (41% of Hispanic/Latino residents in Hispanic/Latino enclave pooled index for 2010 census tracts separately by state. Please see <a href="https://cancerregistry.ucsf.edu/enclave">https://cancerregistry.ucsf.edu/enclave</a> for interactive maps and additional data.

Asian American Ethnic Enclave Index	2000	2010
Eigenvalue (first component)	3.48	3.35
Variance explained (first component)	87.0%	83.6%
Eigenvector values (first component)		
% Asian American (Asian American count/total	0.51	0.51
population)		
% Foreign-Born Asian American (Asian American	0.51	0.52
who are foreign-born/total population)		
% Limited English: Asian/Pacific Islander (API)	0.49	0.49
languages (People who speak English "not well" or		
"not at all" and speak API languages/total		
population)		
% Linguistically Isolated: API languages	0.49	0.48
(Households that are linguistically isolated and		
speak API languages/total households)		

## Table 1. Principal Components Analysis Results for Pooled Asian American Ethnic Enclave Index, 2000 and 2010 Census Tracts in California, Florida, New Jersey, New York, and Texas.

### Table 2. Principal Components Analysis Results for Pooled Hispanic/Latino Ethnic Enclave Index, 2000 and 2010 Census Tracts in California, Florida, New Jersey, New York, and Texas.

Hispanic/Latino Ethnic Enclave Index	2000	2010
Eigenvalue (first component)	3.59	3.49
Variance explained (first component)	89.8%	87.3%
Eigenvector values (first component)		
% Hispanic/Latino (Hispanic or Latino count/total	0.50	0.49
population)		

% Foreign-Born Hispanic/Latino (Hispanic/Latino who are foreign-born/total population)	0.50	0.51
% Limited English: Spanish (People who speak English "not well" or "not at all" and speak Spanish/total population)	0.51	0.51
% Linguistically Isolated: Spanish (Households that are linguistically isolated and speak Spanish/total households)	0.50	0.49

Table 3. Percent of all census tracts classified by pooled Asian American and Hispanic/Latino ethnic enclave indices, by state, 2000 and 2010 census tracts.

	CA		FL		NJ		NY		ΤX			
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010		
Asian American er	nclave											
Quintiles		Percent of all tracts in the state <sup>1</sup>										
Q1 (low enclave):	7.42	7.19	26.26	28.86	15.38	14.33	21.97	19.61	35.55	35.08		
Q2	11.22	11.74	32.21	31.43	20.30	19.89	21.43	20.99	23.62	22.63		
Q3	17.03	17.98	27.00	22.83	23.20	24.55	20.12	21.37	18.20	17.82		
Q4	26.25	25.82	13.20	14.35	25.74	23.20	18.02	19.32	14.51	15.02		
Q5 (high enclave)	38.08	37.26	1.34	2.52	15.38	18.04	18.46	18.72	8.13	9.46		
Dichotomous												
Enclave	46.05	48.40	1.78	3.85	24.08	27.25	18.35	23.19	10.25	13.62		
Non-enclave	53.95	51.60	98.22	96.15	75.92	72.75	81.65	76.81	89.75	86.38		
Hispanic/Latino en	clave											
Quintiles												
Q1 (low enclave)	8.37	10.32	25.28	24.78	33.61	30.01	38.56	39.05	8.45	9.53		
Q2	18.14	18.49	26.04	23.07	25.27	26.00	19.12	19.92	17.28	17.64		
Q3	20.93	20.27	21.69	21.27	17.24	17.64	15.56	16.48	23.39	22.73		
Q4	23.61	23.13	16.28	18.00	12.69	14.88	14.94	13.70	25.68	24.61		
Q5 (high enclave)	28.94	27.78	10.72	12.88	11.19	11.47	11.82	10.86	25.20	25.49		
Dichotomous												
Enclave	44.28	42.42	18.35	20.84	18.07	18.74	18.27	16.97	39.30	38.65		
Non-enclave	55.72	57.58	81.65	79.16	81.93	81.26	81.73	83.03	60.70	61.35		

1. Tracts with missing data due to low/zero populations were excluded

Table 4. Mediar	ו values for variables included in the PCA by pooled Asian American end	clave
index quintiles,	, 2000 and 2010 census tracts.	

	Pooled	data	CA		FL		NJ	NJ		NY		
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Asian American Enclave quintiles												
Proportion of Asian American residents												
Q1 (low enclave)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Q2	0.008	0.010	0.011	0.013	0.008	0.011	0.009	0.011	0.008	0.009	0.007	0.009
Q3	0.023	0.033	0.028	0.037	0.019	0.030	0.026	0.036	0.024	0.032	0.019	0.029
Q4	0.049	0.065	0.056	0.073	0.036	0.047	0.054	0.073	0.047	0.064	0.042	0.056
Q5 (high enclave)	0.161	0.197	0.173	0.210	0.074	0.102	0.152	0.211	0.161	0.212	0.115	0.145
Proportion of foreig	n-born A	sian Ame	erican re	sidents								
Q1 (low enclave)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Q2	0.005	0.007	0.005	0.007	0.006	0.007	0.006	0.008	0.006	0.007	0.005	0.006
Q3	0.015	0.022	0.016	0.021	0.014	0.022	0.018	0.025	0.017	0.022	0.013	0.020
Q4	0.033	0.042	0.034	0.043	0.028	0.033	0.038	0.049	0.034	0.044	0.031	0.039
Q5 (high enclave)	0.111	0.131	0.115	0.134	0.057	0.075	0.116	0.151	0.121	0.147	0.089	0.106

Proportion of Limite	Proportion of Limited English-speaking residents who speak API languages												
Q1 (low enclave)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Q2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Q3	0.002	0.000	0.002	0.001	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.001	
Q4	0.006	0.007	0.006	0.007	0.006	0.008	0.005	0.006	0.006	0.007	0.006	0.008	
Q5 (high enclave)	0.026	0.030	0.028	0.032	0.020	0.027	0.015	0.019	0.031	0.039	0.019	0.024	
Proportion of Linguistically Isolated households who speak API languages													
Q1 (low enclave)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Q2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Q3	0.002	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.001	0.000	0.003	0.000	
Q4	0.009	0.010	0.009	0.010	0.009	0.010	0.007	0.009	0.009	0.010	0.010	0.011	
Q5 (high enclave)	0.036	0.042	0.039	0.047	0.027	0.030	0.023	0.028	0.036	0.044	0.029	0.033	
Asian American enc	lave (dic	hotomou	<u>is)</u>										
Proportion of Asian	America	n resideı	nts										
Enclave	0.136	0.161	0.144	0.170	0.066	0.096	0.116	0.164	0.159	0.185	0.103	0.124	
Non-enclave	0.012	0.015	0.026	0.028	0.010	0.012	0.016	0.021	0.012	0.015	0.006	0.006	
Proportion of foreign	<u>1-born A</u>	sian Ame	erican re	sidents		-	-				-	-	
Enclave	0.093	0.106	0.094	0.107	0.051	0.066	0.085	0.112	0.120	0.128	0.077	0.088	
Non-enclave	0.008	0.010	0.015	0.016	0.007	0.008	0.012	0.015	0.008	0.010	0.004	0.004	
Proportion of Limite	d Englisl	h-speaki	ng reside	ents who	speak A	PI langu	lages				-	-	
Enclave	0.019	0.021	0.022	0.024	0.009	0.014	0.010	0.013	0.025	0.024	0.014	0.015	
Non-enclave	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Proportion of Lingui	stically I	solated <b>I</b>	nouseho	lds who	speak Al	PI langua	nges						
Enclave	0.027	0.028	0.030	0.032	0.015	0.018	0.015	0.019	0.032	0.029	0.022	0.023	
Non-enclave	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

# Table 5. Median values for variables included in the PCA by pooled Hispanic/Latino enclave index quintiles, 2000 and 2010 census tracts.

	Pooled	data	CA		FL		NJ		NY		ТΧ	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Hispanic/Latino enc	lave quir	ntiles										
Proportion of Hispar	nic/Latin	o resider	nts									
Q1 (low enclave)	0.022	0.035	0.048	0.063	0.021	0.030	0.023	0.035	0.015	0.024	0.033	0.059
Q2	0.061	0.095	0.080	0.119	0.045	0.076	0.047	0.075	0.057	0.083	0.067	0.113
Q3	0.118	0.174	0.139	0.206	0.096	0.140	0.095	0.145	0.105	0.147	0.125	0.196
Q4	0.262	0.339	0.282	0.372	0.216	0.282	0.221	0.272	0.239	0.288	0.282	0.361
Q5 (high enclave)	0.638	0.713	0.635	0.718	0.615	0.674	0.539	0.628	0.592	0.632	0.742	0.784
Proportion of foreig	n-born H	ispanic/l	_atino re	sidents								
Q1 (low enclave)	0.003	0.004	0.007	0.008	0.004	0.005	0.004	0.005	0.001	0.002	0.004	0.005
Q2	0.016	0.022	0.018	0.025	0.014	0.021	0.014	0.021	0.016	0.021	0.013	0.020
Q3	0.036	0.051	0.040	0.057	0.036	0.050	0.035	0.052	0.035	0.048	0.030	0.045
Q4	0.096	0.120	0.109	0.130	0.102	0.125	0.090	0.126	0.090	0.117	0.079	0.105
Q5 (high enclave)	0.283	0.298	0.315	0.313	0.400	0.395	0.263	0.309	0.241	0.278	0.241	0.265
Proportion of Limite	d Englis	h-speaki	ng reside	ents who	speak S	Spanish						
Q1 (low enclave)	0.001	0.000	0.001	0.000	0.001	0.000	0.002	0.000	0.001	0.000	0.002	0.000
Q2	0.006	0.006	0.005	0.005	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Q3	0.017	0.021	0.015	0.020	0.018	0.022	0.018	0.022	0.017	0.021	0.018	0.019
Q4	0.051	0.062	0.052	0.061	0.049	0.061	0.052	0.066	0.053	0.062	0.049	0.061
Q5 (high enclave)	0.177	0.193	0.188	0.196	0.183	0.195	0.167	0.206	0.158	0.185	0.167	0.189
Proportion of Lingui	stically I	solated I	nouseho	ds who	speak Sp	panish			-			
Q1 (low enclave)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Q2	0.005	0.005	0.004	0.000	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.004
Q3	0.016	0.020	0.013	0.016	0.018	0.025	0.017	0.023	0.018	0.025	0.017	0.021
Q4	0.047	0.058	0.041	0.049	0.050	0.064	0.050	0.067	0.054	0.072	0.050	0.059
Q5 (high enclave)	0.168	0.186	0.159	0.167	0.188	0.214	0.174	0.221	0.185	0.198	0.169	0.193
Hispanic/Latino enc	lave (dic	hotomou	is)									
Proportion of Hispar	nic/Latin	o resider	nts									

Enclave	0.497	0.591	0.508	0.605	0.394	0.493	0.408	0.502	0.467	0.541	0.556	0.652
Non-enclave	0.073	0.112	0.113	0.160	0.051	0.086	0.044	0.073	0.047	0.066	0.106	0.163
Proportion of foreign-born Hispanic/Latino residents												
Enclave	0.202	0.233	0.236	0.248	0.211	0.256	0.184	0.215	0.177	0.215	0.171	0.206
Non-enclave	0.019	0.027	0.029	0.039	0.016	0.025	0.012	0.019	0.010	0.014	0.023	0.034
Proportion of Limited English-speaking residents who speak Spanish												
Enclave	0.122	0.140	0.128	0.144	0.112	0.129	0.121	0.149	0.118	0.137	0.117	0.133
Non-enclave	0.008	0.008	0.010	0.010	0.007	0.008	0.006	0.006	0.005	0.004	0.013	0.013
Proportion of Linguistically Isolated households who speak Spanish												
Enclave	0.113	0.131	0.104	0.117	0.109	0.145	0.120	0.146	0.129	0.148	0.117	0.139
Non-enclave	0.007	0.007	0.008	0.008	0.008	0.008	0.005	0.005	0.004	0.000	0.012	0.013

The 2010 enclave indices were derived using survey data from the American Community Survey with smaller sample sizes than Census long form (a questionnaire on household characteristics that was collected on a subsample of the population in decennial census years and discontinued in 2010), and thus have greater potential for error; we used 5-year estimates to reduce the potential for error.<sup>17</sup> To measure the amount of error, we calculated the coefficient of variation (COV) for each variable and show the results in Appendix E by enclave status. The coefficient of variation represents the error for each variable; variables with COV of 40% or higher are considered unreliable. While those census tracts classified as non-enclaves have higher COVs for each of the variables, census tracts classified as enclaves have lower COVs indicating more reliable data. This reflects the fact that enclaves include larger populations of these groups (e.g., Asian American residents) compared to non-enclave census tracts.

### IV. Considerations, Caveats, and Best Practices

For multistate analyses using all 5 states, we recommend using the pooled data (CA, FL, NJ, NY, TX). However, for single state studies, we recommend using the state-specific measures. In the future, the ENCLAVE team may create enclave measures for other states; in the meantime, studies using data from other states or for more recent years may apply this methodology to create their own measures.

The quintiles will be useful for projects in which the investigators want to consider how residence in more culturally distinct neighborhoods may impact health outcomes; however, the dichotomous variable will be more useful in comparing the impact of residence in enclave vs. non-enclave neighborhoods.

*Limitations.* The enclave measures reported here face several limitations. For example, these measures are relative to the distribution in all census tracts in all 5 states included in our study (pooled measures) or are relative to the distribution in all census tracts within individual states (state-specific measures). Developing a single measure to reflect the multidimensional nature of ethnic enclaves is a challenging task and no single measure can fully capture the complexity of diverse neighborhood environments. The measures reported here only take into account population density of co-ethnic residents, foreign-born status, and linguistic factors; they do not account for other aspects of enclaves such as businesses and cultural centers, or specific birthplace country or recency of immigration or other neighborhood social, physical and built environment features of ethnic enclaves.

Access to Data: Calculate the ethnic enclave measures. Investigators interested in applying these measures of ethnic enclaves are welcome to apply the methodology described in the report to U.S. Census/American Community Survey data. Please cite this ENCLAVE report when the measures are used in published manuscripts, grants, and reports:

*Citation:* Shariff-Marco S, Lin K, Meltzer D, Allen L, Boscoe F, Canchola AJ, Gates Kuliszewski M, German S, Guan A, Harris G, Henry K, Hiatt RA, Hughes AE, McGuire V, Oh D, Paddock LE, Pinheiro PS, Radadiya HR, Reyes S, Stroup A, Zhu H, Gomez SL, Pruitt SL. Developing measures of Asian American and Hispanic/Latino ethnic enclave for five states using U.S. Census and American Community Survey data. University of California San Francisco, San Francisco, CA; October 2021. Online available at:

https://cancerregistry.ucsf.edu/resources/research-tools.

Access to Data: Obtain computed ethnic enclave measures. Investigators interested in using our computed measures of ethnic enclaves in other studies may follow these steps to obtain the measures described in this report:

- Provide the following information to Drs. Salma Shariff-Marco at <u>salma.shariff-marco@ucsf.edu</u> and Sandi Pruitt at <u>Sandi.Pruitt@UTSouthwestern.edu</u> for approval: Prepare a 1-2 page summary that includes PI contact information & study team, timeline, and funding; and brief description of proposed analyses that includes: background, purpose/overall aims, methods, and impact/dissemination.
- 2. Once approved, cite the funding source in abstracts, presentations, reports, and manuscripts: National Cancer Institute (NCI) R01 CA23750 (MPI: Shariff-Marco, Pruitt)
- 3. Once approved, please cite this ENCLAVE report when the measures are used in published manuscripts, grants, and reports:

*Citation:* Shariff-Marco S, Lin K, Meltzer D, Allen L, Boscoe F, Canchola AJ, Gates Kuliszewski M, German S, Guan A, Harris G, Henry K, Hiatt RA, Hughes AE, McGuire V, Oh D, Paddock LE, Pinheiro PS, Radadiya HR, Reyes S, Stroup A, Zhu H, Gomez SL, Pruitt SL. Developing measures of Asian American and Hispanic/Latino ethnic enclave for five states using U.S. Census and American Community Survey data. University of California San Francisco, San Francisco, CA; October 2021. Online available at: <a href="https://cancerregistry.ucsf.edu/resources/research-tools">https://cancerregistry.ucsf.edu/resources/research-tools</a>.

### Appendix A: Prior indicator variables considered in ethnic enclave indices

Ethnic enclave measures	Indicator variables
Asian American ethnic	% recent immigrants
enclave	% of API language-speaking households that are linguistically isolated
	% of API language-speakers with limited English proficiency
	% API
Hispanic/Latino ethnic	% foreign-born
enclave	% recent immigrants
	% households that are linguistically isolated
	% of Spanish language-speaking households that are linguistically
	isolated
	% of all language speakers with limited English proficiency
	% of Spanish language-speakers with limited English proficiency
	% Hispanic/Latino

# Appendix B. Distribution of missing/excluded census tracts in PCA for enclave indices by state (Census tracts with small numerator counts were suppressed by Census and those with zero

population or household denominator counts were excluded).

State	Year	Total census	Tracts with	Tracts missing
		tracts in state	enclave indices	enclave indices
CA	2000	7049	7017	32
CA	2010	8057	7980	77
	2000	3154	3145	9
ΓL	2010	4245	4161	84
NU	2000	1950	1931	19
INJ	2010	2010	1996	14
NIV	2000	4907	4806	101
INT	2010	4919	4825	94
ту	2000	4388	4369	19
	2010	5265	5214	51

### Appendix C: State-specific ethnic enclave indices

#### Methods for State-Specific Ethnic Enclave Measures

The ENCLAVE study was designed to examine cancer outcomes among residents of all 5 states combined. As other investigators may be interested in measuring state-specific ethnic enclaves, we also calculated state-specific ethnic enclave quintiles and dichotomous measures. These analyses entailed repeating the same methods used in the pooled analysis, separately for each of the 5 states.

### **Results for State-Specific Ethnic Enclave Measures**

Appendix Table C1 illustrates distributions using the state-specific enclave indices. Additional information about the state-specific indices can be located here: <u>https://cancerregistry.ucsf.edu/enclave.</u>

Additionally, we compared concordance/discordance between the pooled and state-specific measures. Appendix Table C2 and C3 shows the impact of using pooled- vs. state-specific measures. We reported the % concordance/discordance of pooled vs. state-specific measures of enclave status (dichotomous) separately by state, using only 2010 data.

For the Asian American enclave index in 2010 overall, we observed that 91.5% of census tracts are concordant and 8.5% are discordant, with CA having the highest proportion of discordant pairs. For the Hispanic/Latino enclave index in 2010 overall, we observed that 89.7% of census tracts are concordant and 10.3% are discordant, with NJ and NY having the highest proportion of discordant pairs.

	CA		FL		NJ		NY		ТΧ	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Asian American Enclave										
Eigenvalue (1 <sup>st</sup>	3.54	3.40	2.92	2.78	3.29	3.14	3.42	3.31	3.34	3.22
component)										
Variance explained (1 <sup>st</sup>	88.5%	85.0%	73.0%	69.5%	82.3%	78.4%	85.4%	82.9%	83.6%	80.6%
component)										
% Asian American	0.51	0.51	0.53	0.54	0.51	0.52	0.51	0.51	0.51	0.52
(Eigenvector)										
% Foreign-Born Asian	0.51	0.52	0.54	0.55	0.52	0.53	0.51	0.52	0.52	0.52
American (Eigenvector)										
% Limited English: API	0.50	0.49	0.47	0.46	0.48	0.47	0.49	0.49	0.48	0.48
languages										
(Eigenvector)										
% Linguistically	0.49	0.48	0.46	0.44	0.48	0.48	0.48	0.48	0.48	0.48
Isolated: API languages										
(Eigenvector)										
Hispanic/Latino enclave	-		-		-	-	-	-		-
Eigenvalue (1 <sup>st</sup>	3.65	3.55	3.60	3.46	3.52	3.46	3.51	3.43	3.54	3.42
component)										
Variance explained (1 <sup>st</sup>	91.2%	88.7%	90.0%	86.6%	88.0%	86.6%	87.8%	85.8%	88.6%	85.5%
component)										
% Hispanic/Latino	0.49	0.49	0.50	0.50	0.50	0.50	0.50	0.50	0.49	0.48
(Eigenvector)										

#### Table C1. PCA Results for state-specific ethnic enclave indices, 2000 and 2010 census tracts.

% Foreign-Born	0.51	0.51	0.50	0.51	0.50	0.50	0.50	0.50	0.50	0.50
Hispanic/Latino										
(Eigenvector)										
% Limited English:	0.51	0.51	0.50	0.50	0.50	0.51	0.50	0.51	0.51	0.51
Spanish (Eigenvector)										
% Linguistically	0.49	0.49	0.49	0.49	0.50	0.49	0.49	0.49	0.50	0.50
Isolated: Spanish										
(Eigenvector)										

Table C2. Concordance/discordance for Asian American enclave measures using pooled & state-specific dichotomous measures in 2010

	Defined as enclave (dichotomous measure in 2010) using POOLED data	Defined as enclave (dichotomous measure in 2010) using STATE- SPECIFIC data	Concordant: Pooled enclave =yes & state- specific enclave =yes	Discordant: Pooled enclave =yes & state- specific enclave =no	Discordant: Pooled enclave =no & state-specific enclave =yes	Concordant: Pooled enclave =no & state-specific enclave =no
	N (%) <sup>a</sup>	N (%) <sup>a</sup>	N (Row %)	N (Row %)	N (Row %)	N (Row %)
All states	6395 (26.45)	5634 (23.30)	4989 (20.64)	1406 (5.82)	645 (2.67)	17136 (70.88)
CA	3862 (48.40)	2463 (30.86)	2463 (30.86)	1399 (17.53)	0 (0.00)	4118 (51.60)
FL	160 (3.85)	485 (11.66)	160 (3.85)	0 (0.00)	325 (7.81)	3676 (88.34)
NJ	544 (27.25)	548 (27.45)	537 (26.90)	7 (0.35)	11 (0.55)	1441 (72.19)
NY	1119 (23.19)	1164 (24.12)	1119 (23.19)	0 (0.00)	45 (0.93)	3661 (75.88)
TX	710 (13.62)	974 (18.68)	710 (13.62)	0 (0.00)	264 (5.06)	4240 (81.32)

<sup>a</sup>N is number of census tracts. % is percent of total (non-missing) census tracts in that state.

Table C3.	. Concordance/discordance for Hispanic/Latino enclav	e measures	using pooled &
state-spe	cific dichotomous measures in 2010		

	Defined as enclave (dichotomous measure in 2010) using POOLED data	Defined as enclave (dichotomous measure in 2010) using STATE- SPECIFIC data	Concordant: Pooled enclave =yes & state- specific enclave =yes	Discordant: Pooled enclave =yes & state- specific enclave =no	Discordant: Pooled enclave =no & state-specific enclave =yes	Concordant: Pooled enclave =no & state-specific enclave =no
	N (%) <sup>a</sup>	N (%) <sup>a</sup>	N (Row %)	N (Row %)	N (Row %)	N (Row %)
All states	7460 (30.86)	7569 (31.31)	6266 (25.92)	1194 (4.94)	1303 (5.39)	15413 (63.75)
CA	3385 (42.42)	2590 (32.46)	2590 (32.46)	795 (9.96)	0 (0.00)	4595 (57.58)
FL	867 (20.84)	1264 (30.38)	867 (20.84)	0 (0.00)	397 (9.54)	2897 (69.62)
NJ	374 (18.74)	624 (31.26)	374 (18.74)	0 (0.00)	250 (12.53)	1372 (68.74)
NY	819 (16.97)	1475 (30.57)	819 (16.97)	0 (0.00)	656 (13.60)	3350 (69.43)
TX	2015 (38.65)	1616 (30.99)	1616 (30.99)	399 (7.65)	0 (0.00)	3199 (61.35)

<sup>a</sup>N is number of census tracts. % is percent of total (non-missing) census tracts in that state.

Appendix D. Maps of Asian American and Hispanic/Latino enclaves in select metropolitan areas in CA, FL, NJ, NY, and TX, 2010 census tracts (See <u>https://cancerregistry.ucsf.edu/enclave</u> for interactive maps)



Figure 1. Asian American enclaves in select metropolitan areas in CA, FL, NJ, NY, and TX, 2010 census tracts



#### Figure 2. Hispanic/Latino enclaves in select metropolitan areas in CA, FL, NJ, NY, and TX, 2010 census tracts

### Appendix E.

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Enclave				Non-enclave			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Total	Co	oefficient	of variati	on	Total	Coefficient of variation			
N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N         N		tracts	N/A, Est=0	0% - <12%	12% - <40%	40%+	tracts	N/A, Est=0	0% - <12%	12% - <40%	40%+
All states       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D       D <thd< th=""> <thd<< th=""><th></th><th>N</th><th>%</th><th>%</th><th>%</th><th>%</th><th>N</th><th>%</th><th>%</th><th>%</th><th>%</th></thd<<></thd<>		N	%	%	%	%	N	%	%	%	%
% Asian American         6395         0         22.3         72.5         5.3         17781         20.3         0.1         15.9         63.7           % Foreign-Born         6395         0         15.0         76.4         8.6         17781         23.8         0.0         12.2         64.0           % Linguistically Isolated: API languages         6395         6.2         0.6         28.5         64.7         17781         65.4         0.0         0.3         29.0           Kinguistically Isolated: API languages         6395         6.2         0.6         28.5         64.7         17781         70.7         0         0.3         29.0           CA         %         5395         6.2         0.6         28.5         64.7         17781         70.7         0         0.3         29.0           Kinnied English:         3862         0         17.9         74.8         7.4         4118         12.2         0         20.1         67.7           % Linguistically Isolated: API anguages         3862         5.6         0.6         32.9         60.9         4118         49.6         0         0.6         49.8           % Linguistically Ianguages         3862         5.6	All states		,,,	70	,,,	,,,		70	,,,	70	70
% Foreign-Born Asian American         6395 6395         0         15.0         76.4         8.6         17781         23.8         0.0         12.2         64.0           Asian American APL languages         6395         4.0         1.4         34.6         60.0         17781         23.8         0.0         12.2         64.0           APL languages         6395         6.2         0.6         28.5         64.7         17781         70.7         0         0.3         29.0           languages         6395         6.2         0.6         28.5         64.7         17781         70.7         0         0.3         29.0           Valinguestically solated: API languages         3862         0         27.6         68.8         3.6         4118         8.1         0.2         29.7         62.0           % Linguistically languages         3862         2.7         1.6         39.7         56.0         4118         49.6         0         0.6         49.8           % Linguistically languages         3862         5.6         0.6         32.9         60.9         4118         59.2         0         0.8         40.0           % Linguistically languages         160         0 <td< td=""><td>% Asian American</td><td>6395</td><td>0</td><td>22.3</td><td>72 5</td><td>53</td><td>17781</td><td>20.3</td><td>0.1</td><td>15.9</td><td>63 7</td></td<>	% Asian American	6395	0	22.3	72 5	53	17781	20.3	0.1	15.9	63 7
Asian American         Sobo         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5	% Foreign-Born	6395	0	15.0	76.4	8.6	17781	23.8	0.0	12.2	64.0
% Limited English: API languages         6395         4.0         1.4         34.6         60.0         17781         65.4         0.0         0.3         34.3           API languages         6395         6.2         0.6         28.5         64.7         17781         70.7         0         0.3         29.0           Isolated: API languages         3862         0         27.6         68.8         3.6         4118         8.1         0.2         29.7         62.0           % Asian American         3862         0         17.9         74.8         7.4         4118         8.1         0.2         29.7         62.0           % Limited English: API languages         3862         2.7         1.6         39.7         56.0         4118         8.1         0.2         29.7         62.0           % Linguistically Isolated: API languages         3862         5.6         0.6         32.9         60.9         4118         59.2         0         0.8         40.0           % Linguistically Isolated: API languages         160         0         1.3         72.5         26.3         4001         74.3         0         0.1         25.6           % Linguistically Isolated: API languages         160	Asian American	0000	U	10.0	70.4	0.0	11101	20.0	0.0	12.2	04.0
API languages         600         1.4         01.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0	% Limited English:	6395	40	14	34.6	60.0	17781	65.4	0.0	03	34 3
No. Inspective         6395         6.2         0.6         28.5         64.7         17781         70.7         0         0.3         29.0           Isolated: API languages         3862         0         27.6         68.8         3.6         4118         8.1         0.2         29.0         67.7           Ø Asian American         3862         0         17.9         74.8         7.4         4118         12.2         0         20.1         67.7           Asian American         3862         2.7         1.6         39.7         56.0         4118         49.6         0         0.6         49.8           W Linguistically Isolated: API languages         3862         5.6         0.6         32.9         60.9         4118         59.2         0         0.8         40.0           % Linguistically Isolated: API languages         3862         5.6         0.6         32.9         60.9         4118         59.2         0         0.8         40.0           % Foreign-Born         160         0         1.3         63.1         35.6         4001         27.7         0         7.0         65.3           % Linguistically Isolated: API         160         7.5         0 <td< td=""><td>API languages</td><td>0000</td><td>1.0</td><td></td><td>01.0</td><td>00.0</td><td>11101</td><td>00.1</td><td>0.0</td><td>0.0</td><td>01.0</td></td<>	API languages	0000	1.0		01.0	00.0	11101	00.1	0.0	0.0	01.0
No. migraticity         Code         Call         Code         Call         No.	% Linguistically	6395	62	0.6	28.5	64 7	17781	70.7	0	0.3	29.0
Ionguages         Ionguages         Ionguages         Ionguages         Ionguages         Ionguages           GA         3862         0         27.6         68.8         3.6         4118         8.1         0.2         29.7         62.0           % Asian American         3862         0         17.9         74.8         7.4         4118         12.2         0         20.1         67.7           Asian American         3862         2.7         1.6         39.7         56.0         4118         49.6         0         0.6         49.8           API languages         3862         5.6         0.6         32.9         60.9         4118         59.2         0         0.8         40.0           Isolated: API         1anguages         72.5         26.3         4001         24.7         0.0         8.1         67.2           % Foreign-Bom         160         0         1.3         63.1         35.6         4001         24.7         0.0         8.1         67.2           % Foreign-Bom         160         0         1.3         63.1         35.6         4001         74.3         0         0.1         25.6           API languages         160	Isolated: API	0000	0.2	0.0	20.0	01.1		10.1	Ũ	0.0	20.0
CA         CA <thca< th="">         CA         CA         CA<!--</td--><td>languages</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thca<>	languages										
Solution	CA	1									
Bit Burn Rubber         Bobb         Disc         Disc <thdis< th="">         Disc         Disc</thdis<>	% Asian American	3862	0	27.6	68.8	36	4118	81	0.2	29.7	62.0
Asian American         Core         File	% Foreign-Born	3862	0	17.9	74.8	74	4118	12.2	0	20.1	67.7
Number of the second	Asian American	0002	Ŭ	11.0	71.0		1110	12.2	Ŭ	20.1	01.1
API languages         Lin         Lin <thlin< th=""> <t< td=""><td>% Limited English</td><td>3862</td><td>27</td><td>16</td><td>39.7</td><td>56.0</td><td>4118</td><td>49.6</td><td>0</td><td>0.6</td><td>49.8</td></t<></thlin<>	% Limited English	3862	27	16	39.7	56.0	4118	49.6	0	0.6	49.8
Name         Solution         Solution <th< td=""><td>API languages</td><td>0002</td><td>2.1</td><td>1.0</td><td>00.1</td><td>00.0</td><td>1110</td><td>10.0</td><td>Ŭ</td><td>0.0</td><td>10.0</td></th<>	API languages	0002	2.1	1.0	00.1	00.0	1110	10.0	Ŭ	0.0	10.0
Balander         Boold	% Linguistically	3862	56	0.6	32.9	60.9	4118	59.2	0	0.8	40.0
languages         Image         Image <thimage< th="">         Image         Image</thimage<>	Isolated: API	0002	0.0	0.0	02.0	00.0		00.2	Ũ	0.0	10.0
FL       Sector	languages										
% Asian American         160         0         1.3         72.5         26.3         4001         24.7         0.0         8.1         67.2           % Foreign-Born Asian American         160         0         1.3         63.1         35.6         4001         27.7         0         7.0         65.3           % Limited English: API languages         160         10.6         0         10.6         78.8         4001         74.3         0         0.1         25.6           % Linguistically Isolated: API languages         160         7.5         0         4.4         88.1         4001         76.5         0         0.0         23.5           NJ          160         7.5         0         4.4         88.1         4001         76.5         0         0.0         23.5           NJ           16.9         75.4         7.7         1452         14.2         0.1         20.1         65.6           % Foreign-Born Asian American         544         0         17.5         75.2         1452         64.8         0         0         35.2           API languages         544         7.4         0         17.5         75.2         1452 </td <td>FL</td> <td></td> <td></td> <td></td> <td><u> </u></td> <td><u> </u></td> <td></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td></td>	FL				<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>	
% Foreign-Born Asian American         160         0         1.3         63.1         35.6         4001         27.7         0         7.0         65.3           % Limited English: API languages         160         10.6         0         10.6         78.8         4001         74.3         0         0.1         25.6           % Linguistically Isolated: API languages         160         7.5         0         4.4         88.1         4001         76.5         0         0.0         23.5           % Asian American         544         0         21.3         73.3         5.3         1452         14.2         0.1         20.1         65.6           % Foreign-Born Asian American         544         0         16.9         75.4         7.7         1452         17.6         0         17.7         64.7           % Linguistically Isolated: API languages         544         7.4         0         17.5         75.2         1452         64.8         0         0         35.2           % Linguistically Isolated: API languages         544         6.3         0         16.7         77.0         1452         70.7         0         0.1         29.2           % Asian American         1119         0 </td <td>% Asian American</td> <td>160</td> <td>0</td> <td>1.3</td> <td>72.5</td> <td>26.3</td> <td>4001</td> <td>24.7</td> <td>0.0</td> <td>8.1</td> <td>67.2</td>	% Asian American	160	0	1.3	72.5	26.3	4001	24.7	0.0	8.1	67.2
Asian American         Internation         Internation <thinternation< th="">         Internation         <thinternation< th=""> <thinternation< th=""></thinternation<></thinternation<></thinternation<>	% Foreign-Born	160	0	1.3	63.1	35.6	4001	27.7	0	7.0	65.3
% Limited English: API languages         160         10.6         0         10.6         78.8         4001         74.3         0         0.1         25.6           % Linguistically Isolated: API languages         160         7.5         0         4.4         88.1         4001         76.5         0         0.0         23.5           NJ         % Saian American         544         0         21.3         73.3         5.3         1452         14.2         0.1         20.1         65.6           % Foreign-Born Asian American         544         0         16.9         75.4         7.7         1452         17.6         0         17.7         64.7           % Linguistically Isolated: API languages         544         7.4         0         17.5         75.2         1452         64.8         0         0         35.2           WY          544         7.4         0         17.5         75.2         1452         64.8         0         0         12.3         66.6           % Linguistically Isolated: API languages         544         6.3         0         16.7         77.0         1452         70.7         0         0.1         22.3           % Asian American	Asian American		-	-					-	-	
API languages         Image of the line line line of the line of the line line of the line of	% Limited English:	160	10.6	0	10.6	78.8	4001	74.3	0	0.1	25.6
% Linguistically Isolated: API languages         160         7.5         0         4.4         88.1         4001         76.5         0         0.0         23.5           NJ         NJ         NJ         Stan American         544         0         21.3         73.3         5.3         1452         14.2         0.1         20.1         65.6           % Foreign-Born Asian American         544         0         21.3         73.3         5.3         1452         14.2         0.1         20.1         65.6           % Foreign-Born Asian American         544         0         16.9         75.4         7.7         1452         17.6         0         17.7         64.7           % Linguistically Isolate: API languages         544         7.4         0         17.5         75.2         1452         64.8         0         0         29.2           % Linguistically Isolate: API languages         544         6.3         0         16.7         77.0         1452         70.7         0         0.1         29.2           % Asian American         1119         0         13.3         80.3         6.4         3706         18.5         0.1         14.7         66.6           % Linguistical	API languages										
Isolated: API languages         Image: Solated: API MJ         Image: Solated: API Mode         Image: Sol	% Linguistically	160	7.5	0	4.4	88.1	4001	76.5	0	0.0	23.5
languages         Image of the state o	Isolated: API										
NJ         Second S	languages										
% Asian American         544         0         21.3         73.3         5.3         1452         14.2         0.1         20.1         65.6           % Foreign-Born Asian American         544         0         16.9         75.4         7.7         1452         17.6         0         17.7         64.7           % Limited English: API languages         544         7.4         0         17.5         75.2         1452         64.8         0         0         35.2           % Linguistically Isolated: API languages         544         6.3         0         16.7         77.0         1452         70.7         0         0.1         29.2           % Asian American         1119         0         13.3         80.3         6.4         3706         18.5         0.1         14.7         66.6           % Foreign-Born Asian American         1119         0         9.4         81.9         8.7         3706         21.4         0.1         12.3         66.2           % Limited English: API languages         1119         5.2         2.8         35.6         56.5         3706         64.7         0.0         0.4         34.9           % Linguistically Isolatet: API languages         1119 <td< td=""><td>NJ</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	NJ										
% Foreign-Born Asian American         544         0         16.9         75.4         7.7         1452         17.6         0         17.7         64.7           % Limited English: API languages         544         7.4         0         17.5         75.2         1452         64.8         0         0         35.2           % Linguistically Isolated: API languages         544         6.3         0         16.7         77.0         1452         70.7         0         0.1         29.2           % Asian American         1119         0         13.3         80.3         6.4         3706         18.5         0.1         14.7         66.6           % Foreign-Born Asian American         1119         0         9.4         81.9         8.7         3706         21.4         0.1         12.3         66.2           % Linguistically Isolated: API languages         1119         5.2         2.8         35.6         56.5         3706         64.7         0.0         0.4         34.9           % Linguistically Isolated: API languages         1119         7.7         1.2         28.3         62.8         3706         70.5         0         0.2         29.2           % Linguistically Isolated: API languages	% Asian American	544	0	21.3	73.3	5.3	1452	14.2	0.1	20.1	65.6
Asian American         Image: Second sec	% Foreign-Born	544	0	16.9	75.4	7.7	1452	17.6	0	17.7	64.7
% Limited English: API languages       544       7.4       0       17.5       75.2       1452       64.8       0       0       35.2         % Linguistically Isolated: API languages       544       6.3       0       16.7       77.0       1452       70.7       0       0.1       29.2         % Asian American       1119       0       13.3       80.3       6.4       3706       18.5       0.1       14.7       66.6         % Foreign-Born Asian American       1119       0       9.4       81.9       8.7       3706       21.4       0.1       12.3       66.2         % Limited English: API languages       1119       5.2       2.8       35.6       56.5       3706       64.7       0.0       0.4       34.9         % Limited English: API languages       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2         % Linguistically Isolated: API languages       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2       29.2         % Asian American       710       0       12.5       79.4       8.0       4504       31.0       0.1	Asian American										
API languages       Image of the second	% Limited English:	544	7.4	0	17.5	75.2	1452	64.8	0	0	35.2
% Linguistically Isolated: API languages       544       6.3       0       16.7       77.0       1452       70.7       0       0.1       29.2         NY       % Asian American       1119       0       13.3       80.3       6.4       3706       18.5       0.1       14.7       66.6         % Foreign-Born Asian American       1119       0       9.4       81.9       8.7       3706       21.4       0.1       12.3       66.2         % Limited English: API languages       1119       5.2       2.8       35.6       56.5       3706       64.7       0.0       0.4       34.9         % Linguistically Isolated: API languages       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2         % Asian American       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2         % Linguistically Isolated: API languages       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2         % Asian American       710       0       12.5       79.4       8.0       4504       31.0       0.1	API languages										
Isolated: API languages       Isolated: API languages <td>% Linguistically</td> <td>544</td> <td>6.3</td> <td>0</td> <td>16.7</td> <td>77.0</td> <td>1452</td> <td>70.7</td> <td>0</td> <td>0.1</td> <td>29.2</td>	% Linguistically	544	6.3	0	16.7	77.0	1452	70.7	0	0.1	29.2
languages         Image	Isolated: API										
NY           % Asian American         1119         0         13.3         80.3         6.4         3706         18.5         0.1         14.7         66.6           % Foreign-Born Asian American         1119         0         9.4         81.9         8.7         3706         21.4         0.1         12.3         66.2           % Limited English: API languages         1119         5.2         2.8         35.6         56.5         3706         64.7         0.0         0.4         34.9           % Linguistically Isolated: API languages         1119         7.7         1.2         28.3         62.8         3706         70.5         0         0.2         29.2           % Linguistically Isolated: API languages         1119         7.7         1.2         28.3         62.8         3706         70.5         0         0.2         29.2           % Asian American         710         0         12.5         79.4         8.0         4504         31.0         0.1         9.9         59.0           % Foreign-Born Asian American         710         0         9.9         80.0         10.1         4504         34.7         0.0         7.8         57.4	languages										
% Asian American         1119         0         13.3         80.3         6.4         3706         18.5         0.1         14.7         66.6           % Foreign-Born Asian American         1119         0         9.4         81.9         8.7         3706         21.4         0.1         12.3         66.2           % Limited English: API languages         1119         5.2         2.8         35.6         56.5         3706         64.7         0.0         0.4         34.9           % Linguistically Isolated: API languages         1119         7.7         1.2         28.3         62.8         3706         70.5         0         0.2         29.2           % Asian American         710         0         12.5         79.4         8.0         4504         31.0         0.1         9.9         59.0           % Foreign-Born Asian American         710         0         12.5         79.4         8.0         4504         31.0         0.1         9.9         59.0	NY		-							· · · -	
% Foreign-Born Asian American       1119       0       9.4       81.9       8.7       3706       21.4       0.1       12.3       66.2         % Limited English: API languages       1119       5.2       2.8       35.6       56.5       3706       64.7       0.0       0.4       34.9         % Linguistically Isolated: API languages       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2         % Kaian American       710       0       12.5       79.4       8.0       4504       31.0       0.1       9.9       59.0         % Foreign-Born Asian American       710       0       12.5       79.4       8.0       4504       34.7       0.0       7.8       57.4	% Asian American	1119	0	13.3	80.3	6.4	3706	18.5	0.1	14./	66.6
Asian American         Image: Constraint of the image of the ima	% Foreign-Born	1119	0	9.4	81.9	8.7	3706	21.4	0.1	12.3	66.2
% Limited English:       1119       5.2       2.8       35.6       56.5       3706       64.7       0.0       0.4       34.9         API languages       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2         Isolated: API languages       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2         X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       X       <	Asian American	1110			05.0		0700	047		0.4	04.0
API languages         Image is an antipart of the image is a strain of the image is a str	% Limited English:	1119	5.2	2.8	35.6	56.5	3706	64.7	0.0	0.4	34.9
% Linguistically Isolated: API languages       1119       7.7       1.2       28.3       62.8       3706       70.5       0       0.2       29.2         You and the second secon	API languages	1110		1.0			0700	70 5			
Isolated: AP1 languages       Image: Constraint of the second secon	% Linguistically	1119	1.1	1.2	28.3	62.8	3706	70.5	0	0.2	29.2
TX         %         Asian American         710         0         12.5         79.4         8.0         4504         31.0         0.1         9.9         59.0           % Foreign-Born         710         0         9.9         80.0         10.1         4504         34.7         0.0         7.8         57.4	Isolated: API										
***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ****         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         ***         *** <td></td> <td>l</td> <td></td> <td></td> <td>l</td> <td>l</td> <td>I</td> <td>l</td> <td>l</td> <td>l</td> <td>l</td>		l			l	l	I	l	l	l	l
% Asian American         710         0         12.5         79.4         8.0         4504         31.0         0.1         9.9         59.0           % Foreign-Born         710         0         9.9         80.0         10.1         4504         34.7         0.0         7.8         57.4           Asian American         710         0         9.9         80.0         10.1         4504         34.7         0.0         7.8         57.4		740	0	10.5	70.4	0.0	4504	21.0	0.1	0.0	50.0
Asian American 710 0 9.9 00.0 10.1 4504 34.7 0.0 7.8 57.4	% Asian American	710	0	12.5	19.4	0.0	4504	31.0	0.1	9.9	59.U
	Asian American	110	0	5.9	00.0	10.1	4004	54.7	0.0	1.0	57.4

# Table E1. Coefficient of variation for variables included in the PCA of the Asian Americanenclave measure by enclave status, American Community Survey 2008-2012.

% Limited English:	710	4.6	0	23.9	71.4	4504	72.8	0	0.3	26.9
API languages										
% Linguistically	710	7.2	0	19.4	73.4	4504	76.1	0	0.2	23.7
Isolated: API										
languages										

# Table E2. Coefficient of variation for variables included in the PCA of the Hispanic/Latino enclave measure by enclave status, American Community Survey 2008-2012.

			Enclave				Non-enclave					
	Total Coefficient of variation					Total	Co	pefficient	of variati	on		
	tracts	N/A,	0% -	12% -	40%+	tracts	N/A,	0% -	12% -	40%+		
	N	Est=0	<12%	<40%	0/	N	Est=0	<12%	<40%	0/		
	N	%	%	70	70	<u> </u>	70	70	70	%		
All States	7460	0	60.7	20.0	0.2	16716	1 1	6.0	64.5	20.2		
% Fispanic/Latino	7400	0	09.7	<u> </u>	0.3	16716	1.1	0.2	04.0	Z0.Z		
Hispanic/Latino	7400	0	20.7	09.9	5.5	10710	0.5	0.1	52.5	39.0		
% Limited English:	7460	0	10.0	80.2	80	16716	23.0	0.0	12.7	64.3		
Spanish	7400	0	10.5	00.2	0.5	10710	20.0	0.0	12.7	04.0		
% Linguistically	7460	0.1	26	71.5	25.8	16716	38.8	0.0	51	56.0		
Isolated: Spanish	1 100	0.1	2.0	11.0	20.0	10110	00.0	0.0	0.1	00.0		
CA		1							1			
% Hispanic/Latino	3385	0	75.5	24.4	0.1	4595	0.3	9.2	79.1	11.4		
% Foreign-Born	3385	0	32.6	65.8	1.5	4595	2.4	0.2	46.5	50.9		
Hispanic/Latino												
% Limited English:	3385	0	13.1	79.6	7.4	4595	18.0	0.0	15.5	66.5		
Spanish												
% Linguistically	3385	0.1	1.5	68.7	29.7	4595	36.0	0	4.0	60.0		
Isolated: Spanish												
FL												
% Hispanic/Latino	867	0	60.1	39.2	0.7	3294	1.7	3.3	55.3	39.7		
% Foreign-Born	867	0	34.9	60.4	4.6	3294	9.3	0.2	27.4	63.1		
Hispanic/Latino												
% Limited English:	867	0	11.6	74.6	13.7	3294	24.3	0.0	10.5	65.1		
Spanish	0.07				00.0	0004		0.4		4		
% Linguistically	867	0	8.2	69.2	22.6	3294	36.9	0.1	5.6	57.4		
Isolated: Spanish												
NJ 9/ Hispania/Lating	274	0	51.0	47.0	0.2	1600	0.0	10	60.0	27.0		
% Fispanic/Latino	274	0	21.9	47.9	0.3	1622	0.9	1.0	24.5	57.Z		
% Foreign-born Hispanic/Latino	574	0	19.5	15.1	5.1	1022	0.0	0	24.5	07.0		
% Limited English	374	0	78	83.2	9.1	1622	26.8	0	83	64.9		
Spanish	574	0	7.0	00.2	5.1	1022	20.0	U	0.0	04.0		
% Linguistically	374	0	32	74 9	21.9	1622	45 1	0	43	50.7		
Isolated: Spanish	011	Ũ	0.2	1 1.0	21.0	1022	10.1	Ũ	1.0	00.1		
NY		1							1			
% Hispanic/Latino	819	0	54.3	44.8	0.9	4006	2.2	1.3	50.3	46.2		
% Foreign-Born	819	0	11.0	84.0	5.0	4006	18.0	0.0	18.6	63.4		
Hispanic/Latino												
% Limited English:	819	0	4.9	83.3	11.8	4006	33.0	0.0	7.5	59.5		
Spanish												
% Linguistically	819	0	2.2	72.8	25.0	4006	50.7	0.0	4.3	44.9		
Isolated: Spanish												
TX		1	-			1			1			
% Hispanic/Latino	2015	0	73.7	26.0	0.2	3199	0.3	13.7	72.6	13.4		

% Foreign-Born	2015	0	21.1	74.1	4.8	3199	3.7	0.2	39.1	57.0
Hispanic/Latino										
% Limited English:	2015	0	9.9	81.9	8.2	3199	14.2	0	19.6	66.2
Spanish										
% Linguistically	2015	0.1	2.0	76.1	21.8	3199	26.9	0	7.6	65.5
Isolated: Spanish										

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