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## **Background**

- Massive growth in the warehousing industry within major metropolitan areas
- Subsequent expansion of warehousing-related environmental impacts
- Lack of environmental justice inquiries on the location of warehouses

## **Literature Review**

### **I. Restructuring of the warehousing industry**

- More specialized in new services including transshipping, packaging, etc.
- Serving more geographically dispersed markets
- Making more frequent deliveries in response to demand from retail businesses which reduce inventory
- Introduction of automated warehousing systems
- Increased sizes of warehouses

### **II. Changing environment for the warehousing industry**

- Improved transportation accessibility throughout major metropolitan areas
- Growing land rent and stronger competition over land in the city cores
- Reduced land availability in central areas
- Government interventions including local public policies and regulations
- Increasing awareness of warehousing related externalities among local residents

### **III. Explanations for the environmental justice problem in warehousing location**

- Warehousing developers prefer places with cheap land and low-wage labor, where poor or minority people are usually concentrated
- Disadvantaged populations are less empowered to prevent the development of undesirable land uses, including warehouses in their backyards
- The housing market dynamics and discriminatory public policies such as zoning ordinances constrain the choices of poor and minority residents

**Research Approach:** Multivariate regression model

$$Y_i = f(PC_i, CV_i)$$

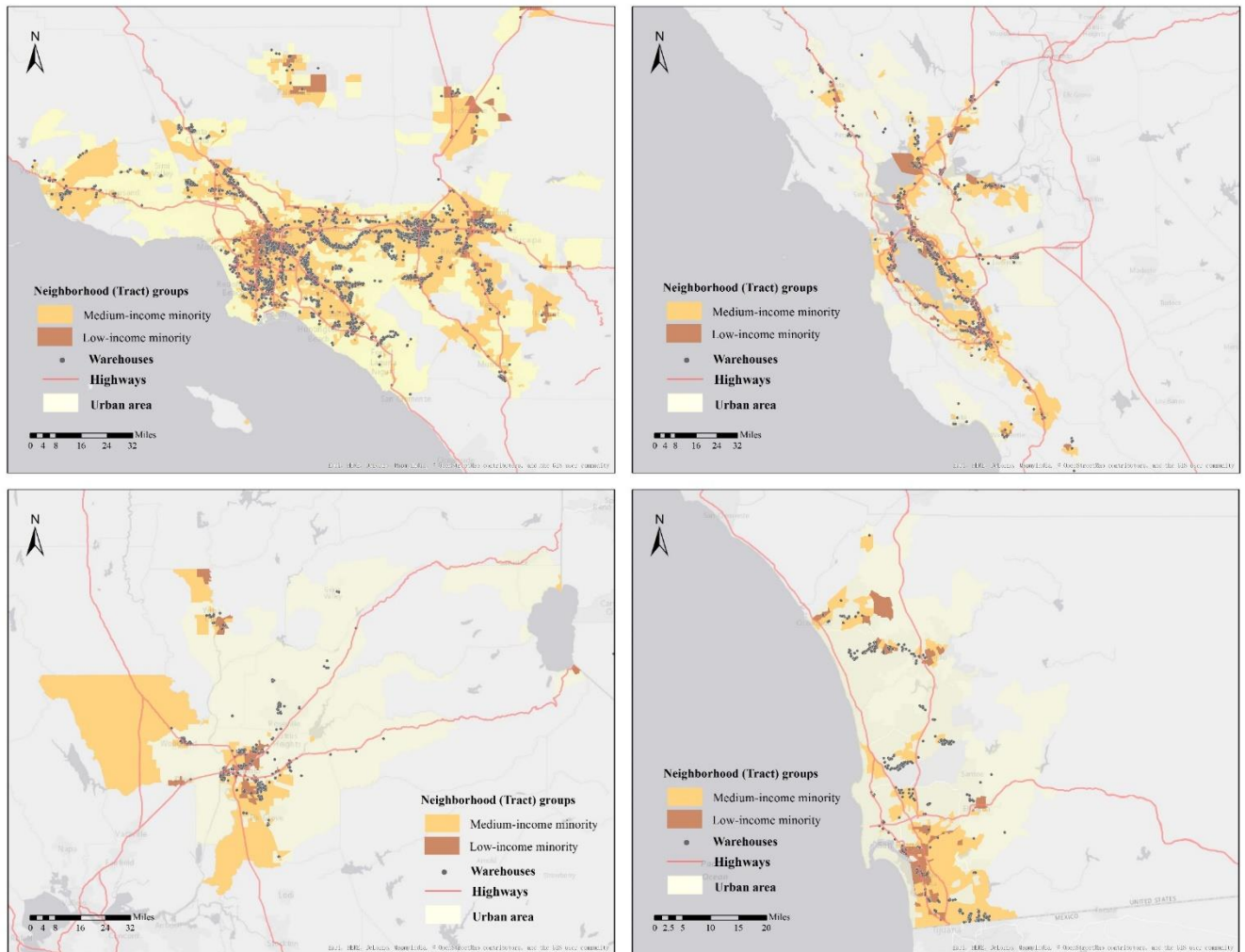
, where Y = warehousing location, PC = population characteristics variables, and CV = control variables.

# Data and Results

TABLE 1 Statistics on economic sizes of the Los Angeles, San Francisco, Sacramento and San Diego regions

	Los Angeles CSA	San Francisco CSA	Sacramento CSA	San Diego MSA
Gross Domestic Product (million dollars)	1,119,674	758,951	124,587	220,573
Population size	18,388,091	8,493,558	2,488,779	3,223,096
Employment size	7,830,378	4,154,975	964,351	1,366,899
Commodity Flow size (million dollars)	1,007,523	421,043	74,932	128,374

Figure 1 Spatial distribution of warehouses and different types of neighborhoods in the Los Angeles region (upper left), San Francisco region (upper right), Sacramento region (lower left) and San Diego region (lower right)



## Summary of multivariate regression results

- Generally consistent evidence on the disproportionate distribution of warehouses in minority neighborhoods across four regions, supporting the hypothesis that environmental inequity exists in the location of warehouses.
- The relationship between warehousing location and socioeconomic status is mixed.
- Control variables, especially industrial connection variables, are found highly critical as a whole in estimating the distribution of warehouses.