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Constructing compact cities:

How urban regeneration can enhance growth and relieve congestion

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**Highlights**

This study finds that skyscrapers can mitigate congestion in large cities.

Cities bombed in WWII have more skyscrapers and less congestion.

In our model, lower regeneration costs make the city larger and center taller.

Steeper cities shorten commuting while increasing population and economic growth.

Restricting building height leads to growth loss and more congestion.

**Abstract:** Urban population growth worsens congestion. However, this effect can be weakened by taller and denser city centers. Considering the important role played by intraurban density patterns, we modeled a mechanism to explain how urban regeneration can relieve population congestion. The model suggests two effects as follows: a direct concentration and an indirect growth effect. The direct concentration effect worsens congestion with little loss of welfare, whereas an indirect growth effect reduces the marginal congestion of population growth. These findings suggest that megacities should build taller and denser city centers through urban regeneration. Moreover, governments should regenerate megacities to support population growth instead of investing in new or smaller cities. This study helps bridge research on urban growth and planning, which warrants further investigation.

**Keywords:** Regeneration, Intraurban density pattern, Population–congestion relationship, Urban growth