



Middle-class flight from post-Katrina New Orleans: A theoretical analysis of inequality and schooling



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ABSTRACT

We present a model of urban resilience where the pattern of disaster recovery is defined by forcibly evacuating the population of a city and then allowing people to return voluntarily. The model predicts the post-disaster population composition of a city, changes in its income distribution and citizen welfare, and changes in the level of public goods. Plausible ex-ante assumptions about urban characteristics lead to a post-disaster city that is smaller, more skill-intensive, and with higher mean educational attainment. The evolution of income inequality is more complex, even though unskilled wages rise, middle-class flight may cause income distribution to worsen. The analysis of disasters' long term impact on fiscal structure and on demographic, income, and human capital distribution, illustrates the interplay of major determinants of resilience after a natural disaster. A stylized New Orleans around the time of its 2005 Katrina disaster is incorporated for realism and used as an example throughout. Predicted changes are broadly consistent with observed effects of Katrina on New Orleans.

1. Introduction

Our model of urban disaster resilience is based on a simple logical chain. When a city is evacuated in the face of disaster, not everyone goes back. Returnees are not a random sample of the original population because the decision to return depends on individual characteristics and on the post-disaster choice set. But recovery depends on who returns. Therefore, if resilience is defined as the ability to recover from disaster, the seeds of urban resilience are sown before disaster strikes.

We present a model that formally lays out this logical structure and explains how urban resilience to disaster is shaped by forcing the population of a city to evacuate and then allowing people to return voluntarily. We will use New Orleans as the motivating example of disaster evacuation and recovery, but we believe that the forces of resilience which we explore are relevant to any of countless events of the past century that involved a sizable and prolonged evacuation. Examples include Darwin, Australia in 1974 (typhoon), Mississauga, Canada in 1979 (chlorine leak), Netherlands in 1995 (flooding), China in 1988 (flooding), Sri Lanka in 2004 (tsunami), Philippines in 2014 (typhoon), Fort McMurray, Canada (wildfire) and Syria (civil war) in 2016. Every major disaster has its own story and every evacuee has his own reasons for deciding if and when to return. We show that the post-disaster configuration of a city as well as its eventual recovery depend on the non-random selection of returnees.

We set the stage with an illustrative example, an informal narrative of the immediate impact of Katrina on New Orleans and of the long term changes it caused.

1.1. New Orleans and Katrina

The complete evacuation of a major city like the one that took place in New Orleans after hurricane Katrina is unprecedented in American history. The extent of the evacuation makes this case. Businesses, schools, and public services shut down. Almost everybody left the city. Not only was the scope of the evacuation exceptional, its duration was too. The first people to return were men. New Orleans was a rough and dangerous place when they began straggling back in late September 2005. Entire city blocks had burned to the ground. Thugs roamed the streets. Trees and power lines were down. Stop signs and signs with street and store names had blown away. There were no working traffic lights, no open stores, no functioning gas stations. The banks were all closed and, without power lines and phones, ATM machines and credit cards were useless. In the city's soft alluvial soil, broken water mains readily formed potholes big enough to rip an axle off your car. There was no electricity, no cooking gas, no cell phone service. And, if you were lucky enough to have water, it was for flushing; you did not dare drink it or bathe in it.

As the metropolitan community made up of New Orleans and the

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less publicized St. Bernard Parish and Slidell attempted to reconstitute itself, it became clear that the pieces no longer fit together quite the way they used to. Mayor Ray Nagin urged New Orleanians to return. Parents asked, “Return to what?” There was no place to live and no place to enroll the kids. One of the first things the city did after the hurricane was to fire all teachers. People improvised. There was the Sugarcane Academy, founded when a small group of evacuees sought refuge together in the Cajun city of Lafayette. Someone recognized two out-of-work public school teachers on the street. They got together in a sugarcane field and held classes for two months, then moved the entire operation back to New Orleans to empty classrooms on the Loyola University campus and the public school continued to operate there. There were the 5 private schools that re-opened make-shift classes in October, by combining students to fill a single-leaf roster. The 7 best public schools broke off from the official system and re-opened to a diminished student body—many teachers gone—in mid-January. But the vast majority of schools did not open at all during the 2005–2006 school year.¹

At least as important as the physical transformation brought about by the hurricane, looters, insurance cancellations, and human folly, were the changes wrought by the collective hiatus. September 2005, the first month of federal government inaction, was very difficult. Families roamed the country by car, bus, and air. They did so in an information vacuum, not knowing if they had lost their house, their job, a loved one. They survived on the generosity of credit card companies that waived late fees and credit limits, rental car companies that didn't ask where their New Orleans cars had gone, cell phone companies that stopped charging roaming fees and forgave excess minutes. They survived on the generosity of family, friends, and complete strangers.

They also survived on the generosity of destination communities that were usually very welcoming. State and local governments, together with private organizations and individual benevolence, provided clothing, shelter, and food. Schools bent over backwards to accept “Katrina refugees” and PTAs donated backpacks and school supplies. After that first month of inaction, the administration made up with adjustment benefits that were cumbersome to obtain, but generous.

New Orleanians had experienced evacuations before. What was unprecedented about this one was that everyone in the city stayed away long enough to obtain a very good picture of what it would be like to live elsewhere.² They found a place to live and became fully engaged in local routines like shopping, going to church or temple, and enrolling the kids in school. It often meant getting a new car, a new driver's license in another state, and a new job. A year later, more than half of the population had not returned.

Before the fall of 2005 the city of New Orleans was known for a nationally unrivaled cultural legacy of music, architecture, culinary arts, and theater. But the area was also known for having a very unequal distribution of income and one of the worst public school systems in the country. In 1999, 25.6% of New Orleans households were below the poverty line.³ Public schools were miserably bad. Out of 77 Orleans Parish public primary schools controlled by the School Board that were tested by the state in 2004, 43 were classified as having unacceptable academic performance and an additional 4 were closed altogether. Orleans Parish public schools ranked 66th out of 66

¹ In the fall of 2005 there were 119 public elementary schools in operation in Orleans Parish. Then Katrina hit. In February of 2006 only 17 were open. Of these 17 open schools, only two ordinary schools operated by the local Orleans Parish School Board remained. The other 15 had been taken over by the State Recovery School District or were new charter schools that split off from the main public system (Louisiana Department of Education, 2006).

² 96% of Orleans Parish residents evacuated and 82% stayed away for more than 2 weeks (Geagham, 2011). The U.S. Census Bureau (2008) estimated that 64% of the July 1, 2005 residents of Orleans Parish remained away on January 1 of 2006, more than 4 months after the storm.

³ Authors' calculation based on IPUMS data (Ruggles et al., 2015).

parishes in the 2003–2004 school district performance scores measured by the Louisiana Department of Education.⁴

Furthermore, though a majority of the population, public school families were politically disenfranchised. Only 27.9% of registered voters exercised their right in local plebiscites that would affect school financing and administration issues.⁵ One-third of New Orleans students attended private schools before Katrina, 3 times more than the national average. African Americans made up 65% of New Orleanians, but 94% of public school students. Citywide, 40% of children lived below the poverty line, but the proportion in public schools was 77%.⁶

At the 10th anniversary of hurricane Katrina, the city has changed. Only 40 of city's 72 neighborhoods have recovered at least 90% of their pre-storm population (Plyer and Mack, 2015). A quarter of the people who filed federal tax returns from New Orleans in 2005 were filing them from somewhere else in the country (Deryugina et al., 2014). This 25% will probably never return.⁷

Demographic structure and human capital and income distribution also changed. For instance, though both Black and White populations declined, the Black population fell by 44.5% between 2000 and 2013, whereas the White population was only 9.8% lower.⁸ The areas of lowest income in 2005 have the lowest return rates. Public housing communities were demolished. The 2015 residences receiving mail in the Desire, Florida, and Iberville public housing developments stands at 71%, 0.9%, and 0.1% of their 2005 levels, respectively, and the Lower 9th Ward was at 36.7% (The Data Center, 2015b, Table 1).

The average educational attainment of adults increased: the share with at least a high school degree rose from 75% in 2000 to 85% in 2013, close to the national average of 87%. At the same time, the share with a college degree rose from 26% to 36%, a full six points higher than the national average (The Data Center, 2015a). This obviously did not happen because the entire population became more educated. We believe many of the city's changes happened because of selective return.⁹

Deryugina et al. (2014) use synthetic control methods to analyze a 1999 to 2010 panel of individual IRS tax return data. They show that, after an initial dip, adjusted gross income of New Orleanians was significantly higher than it would have been without the storm. Wages followed a similar pattern, dipping 15% below the control group in 2006, equaling control wages in 2007, and then rising to surpass them by 10%. The unemployment rate jumped above control levels in 2005, and 2006, but dipped significantly below the control group in 2007 and after.¹⁰

The educational system was even more dramatically transformed.

⁴ Louisiana Department of Education, “Accountability Reports”, <http://www.doe.state.la.us/ide/pair/2069.asp> and <http://www.doe.state.la.us/ide/pair/2228.asp>.

⁵ <http://www.sec.state.la.us/elections/MISC/091804-turnout.pdf>. Ballot included elections for a majority of the local School Board seats. The turnout percentage is based on votes for Criminal Sheriff, the election with the largest number of votes cast. School Board votes were actually lower.

⁶ The Boston Consulting Group, “The State of Public Education in New Orleans, June 2007”, as reported in the publication “A Brief Overview of Public Education in New Orleans, 1995–2009” by the New Schools for New Orleans: http://newschoolsforneworleans.org/downloads/nsno_%20EducFactSheet.7.09.pdf.

⁷ Our calculations from IPUMS data (Ruggles et al., 2015) show that Orleans Parish population was still more than 25% lower in 2013 than it had been in the year 2000: it declined from 481,142 in the year 2000 and still stood at only 352,097 in 2013. U.S. Census Bureau (2015) data shows the population of Orleans Parish declined from 484,674 in the year 2000 to 343,829 in 2010. Estimates for 2014 place it at 384,320, still 21% below where it stood nearly 15 years earlier.

⁸ See also Groen and Polivka (2010).

⁹ McIntosh (2008) reports that New Orleans evacuees living in Houston up to August of 2006 were on average less educated than their hosts; 58% had at most a high school education, compared to 47% of non-evacuee Houston residents. Also, De Silva et al. (2010) find a persistent downward effects of New Orleans migrants on Houston's unskilled wage rate.

¹⁰ Deryugina et al. (2014) also provides a review of the empirical literature regarding the effects of Katrina.

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