

Hurricane Katrina evacuees: who they are, where they are, and how they are faring

Questions added to the Current Population Survey from October 2005 to October 2006 addressed the issue of how Katrina evacuees have fared; blacks, young adults, and the never married were much less likely to return to their homes, and nonreturnees were more likely to be unemployed and to earn less than returnees

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Hurricane Katrina, which struck the gulf coast in August 2005, has had lasting and far-reaching effects. Katrina caused massive flooding in the city of New Orleans and catastrophic damage along the gulf coasts of Alabama, Mississippi, and Louisiana. As a result, Katrina caused one of the largest and most abrupt relocations of people in U.S. history. The plight of evacuees was a central theme in the national news coverage of the hurricane, as Katrina dominated the news for an entire month after making landfall.¹ Indeed, more than 2 years after the storm, Katrina evacuees and the condition of New Orleans continue to receive considerable media attention.²

In response to the unprecedented damage caused by Hurricane Katrina, along with the commensurate massive relocation of individuals, questions were added to the monthly Current Population Survey (CPS) from October 2005 to October 2006 to identify Katrina evacuees, the county (or parish) from which they had evacuated, and if and when these individuals returned to their pre-Katrina residences. This article uses the responses to those questions, in combination with information collected in the CPS on a regular basis, to examine the demographic characteristics of those who evacuated, establish the breadth of the relocation, and explore the labor force status and

incomes of evacuees.

The estimates derived from the CPS data in the analysis that follows indicate that approximately 1.5 million people aged 16 years and older left their residences in Louisiana, Mississippi, and Alabama because of Hurricane Katrina and that the demographic characteristics of evacuees closely mirror the demographic characteristics of those who resided in the Katrina-affected counties in these States prior to the storm. The estimates, however, also indicate that those who returned to where they were living prior to the storm differed markedly from those who did not in terms of demographic characteristics, labor force status, and income.

CPS data on evacuees

The CPS is a nationally representative, monthly survey of approximately 60,000 occupied housing units. The survey is conducted by the U.S. Census Bureau under the auspices of the Bureau of Labor Statistics (BLS). Every month, the CPS collects labor market information on approximately 110,000 individuals aged 15 years and older, along with a wide variety of demographic and employment-related information. Due to the scale of the disaster, Katrina presented challenges to collecting data from households and businesses in the affected areas.³ But with these challenges came opportunities to enrich ongoing surveys to shed light on topics related to Katrina. In the immediate aftermath of the hurricane,

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there was a great deal of interest in determining how individuals affected by the storm were faring and where they were living. As a relatively large monthly survey of a representative sample of U.S. households, the CPS provided a unique opportunity to gather some of this information in a timely manner. At the same time, however, both BLS and Census Bureau staff were extremely sensitive to the need not to disrupt the monthly collection of labor force information for the Nation as a whole. Given all the preparation, programming, and testing involved in modifying the CPS, inserting new questions into the survey instrument within a month or two would be unprecedented. Conscious of both the need for information and the overall concerns about preserving the quality of the important labor force data collected in the CPS each month, the BLS and the Census Bureau jointly decided to add a limited set of questions to the CPS on Hurricane Katrina evacuees.⁴ The new questions, however, could not involve complex skip instructions, and they needed to be structured and placed in the instrument so as to cause as little risk as possible to the rest of the CPS.

The new questions were structured to allow the estimation of the demographic characteristics and employment status of individuals who had evacuated, even temporarily, from their residences due to Hurricane Katrina. The questions also enabled a distinction to be made between those who had returned to their pre-Katrina residences and those who had relocated elsewhere. Finally, in order to analyze the impact of the storm on individuals from different areas, the new questions asked those who had not returned to their pre-Katrina residences about the State and county (or parish) from which they had evacuated.⁵ (For ease of exposition, henceforth the term “county” refers to parishes in Louisiana and counties in other States.) The new questions were added to the CPS starting in October 2005—one-and-a-half months after Hurricane Katrina struck the Gulf region—and remained in the CPS through October 2006.

In June 2006, several questions were added asking individuals who were not at their pre-Katrina addresses if they had ever returned to those addresses and, if so, how long they had stayed and their reasons for leaving. These questions were added because there was a concern that the original questions could inadvertently classify as nonreturnees those individuals who had returned to their former addresses and stayed for a relatively long time, but then had left their domiciles due to normal circumstances of life, such as getting married or attending school. Examination of the data collected in these additional questions indicates that this concern was largely unfounded.

The box on page 34 contains the entire set of questions that were added to the CPS.⁶

Initially, it was thought that the Katrina questions would be included in the CPS for only a couple of months. Subsequently, it was decided to include these questions through October 2006. This decision permitted an analysis of the consistency of individuals’ identification as Katrina evacuees over several months.⁷ An examination of the data across several months revealed some degree of inconsistency. On the basis of interviewer notes and a specially convened focus group of interviewers, it was decided for the purposes of this article to classify as an evacuee anyone who was identified as such in any of the months that his or her household was interviewed.⁸ In addition, to focus more carefully on those directly affected by Hurricane Katrina, the analysis was restricted to those who, prior to the hurricane, lived in Louisiana, Mississippi, or Alabama in counties designated by the Federal Emergency Management Agency (FEMA) as eligible for both public and individual disaster assistance as a result of damages due to the hurricane.⁹ (Henceforth, for simplicity, these counties are referred to as “counties that were affected by Hurricane Katrina” or, simply, “affected counties.”) Map 1 indicates where the affected counties are located.¹⁰

On the basis of (1) the response to the CPS Katrina questions, (2) the restrictions on, and refinements to, the data set forth here, and (3) the use of composite weights specially adjusted to account for the movement of people across States because of the storm, an estimated 1.504 million individuals aged 16 years and older evacuated from their homes, even temporarily, because of Hurricane Katrina. Of these evacuees, an estimated 1.127 million (75 percent) were living in Louisiana prior to the storm, 288,000 (19 percent) were living in Mississippi, and 88,000 (6 percent) were living in Alabama.¹¹ Map 2 depicts the number of evacuees identified in the CPS who originated in each county, with the darker shading indicating a larger number of evacuees coming from that county. The shading indicates that the evacuees in the CPS sample were more likely to come from coastal areas, particularly New Orleans. This pattern of evacuees is consistent with the estimates of housing damage prepared by the U.S. Department of Housing and Urban Development which indicated that these coastal areas suffered greater physical damage than other areas designated by FEMA.¹²

The CPS sample does not include nonresidential housing units such as motels, hotels, homeless shelters, and stadiums. Consequently, there was concern that the CPS may have missed some of those who evacuated because of the storm. The estimates presented here of the number

CPS questions on Hurricane Katrina evacuees

The first set of questions (HHSCREEN through KAT4) was asked beginning in October 2005. The second set (KAT5 through KAT7) was added to the survey in June 2006. The household screener question (HHSCREEN) was asked immediately before the creation (for newly sampled households) or verification (for households interviewed in previous months) of the roster of those living or staying at the address in question. The other questions were asked immediately after the roster was verified.

HHSCREEN

Is there anyone living or staying here who had to evacuate, even temporarily, where he or she was living in August because of Hurricane Katrina?

- <1>Yes [next: KAT1]
- <2>No [next: end Katrina questions]

KAT1

Earlier you indicated that at least one person in the household had to evacuate where he or she was living in August because of Hurricane Katrina.

Who was that?
 [Enter all that apply.]
 PROBE: Anyone else?

[next: KAT2]

KAT2

In August, prior to the hurricane warning, where (was NAME/were you) living?

- [Read if necessary]
- <1>At this current address (in LA, MS, AL, FL) [next: KAT4]
 - <2>Louisiana (but not this address) [next: KAT3]
 - <3>Mississippi (but not this address) [next: KAT3]
 - <4>Alabama (but not this address) [next: KAT3]
 - <5>Florida (but not this address) [next: end Katrina questions]
 - <6>Elsewhere in the U.S. [next: end Katrina questions]

KAT3

What county, parish, or city (was NAME/were you) living in prior to the hurricane warning?
 _____ [Specify]

[next: KAT5]

KAT4

When did (NAME/you) return to this address?

_____ month _____ day

[next: end Katrina questions]

KAT5

Did you move back, even temporarily, to the address you had prior to Hurricane Katrina?

- <1>Yes [next: KAT6]
- <2>No [next: end Katrina questions]

KAT6

How long did you stay?

- <1>Less than 2 weeks
- <2>2 to 4 weeks
- <3>A month or more

[next: KAT7]

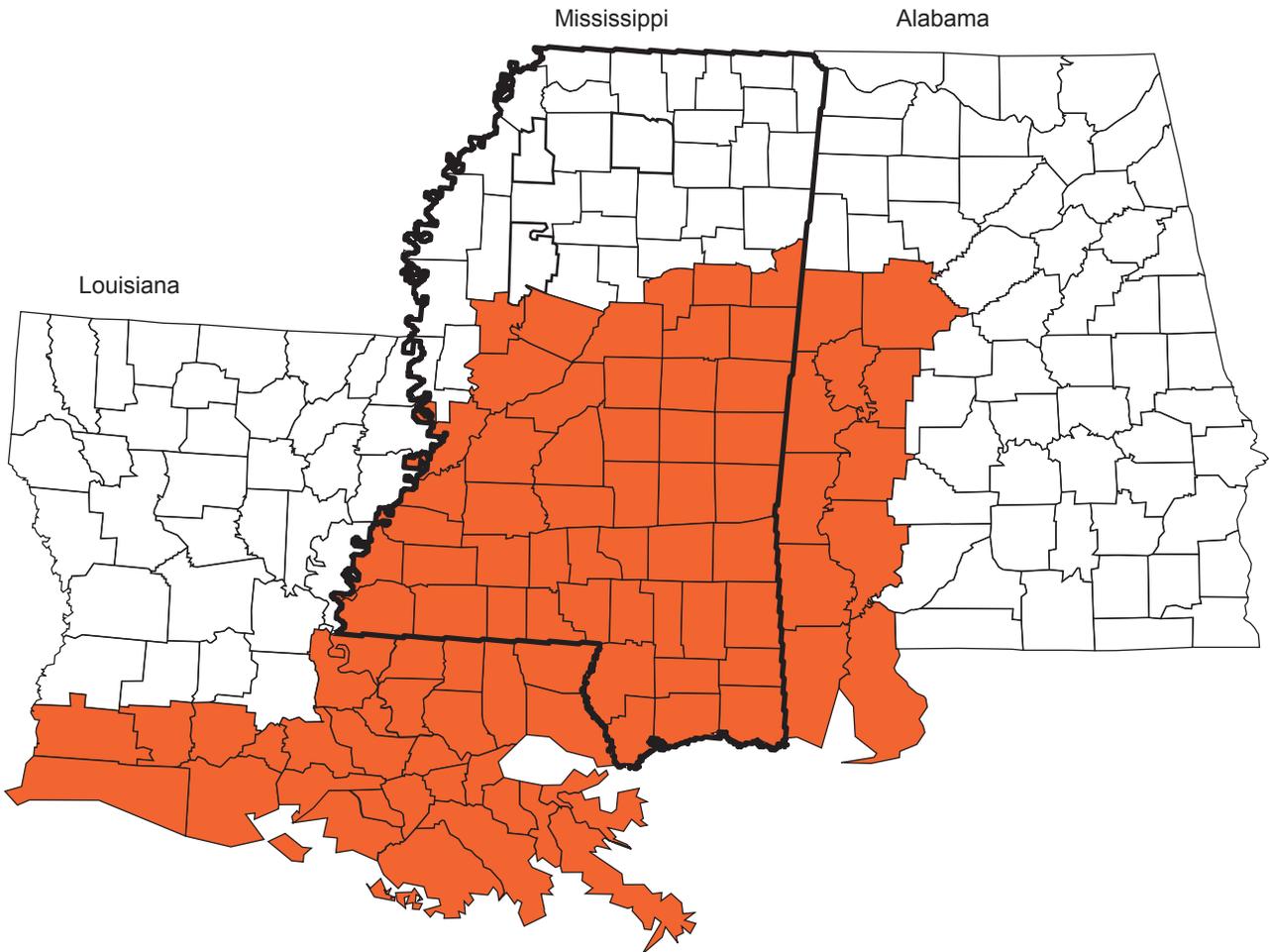
KAT7

Why did you leave after returning?

_____ [Specify]

Map 1.

Counties eligible for individual and public assistance from FEMA for Katrina



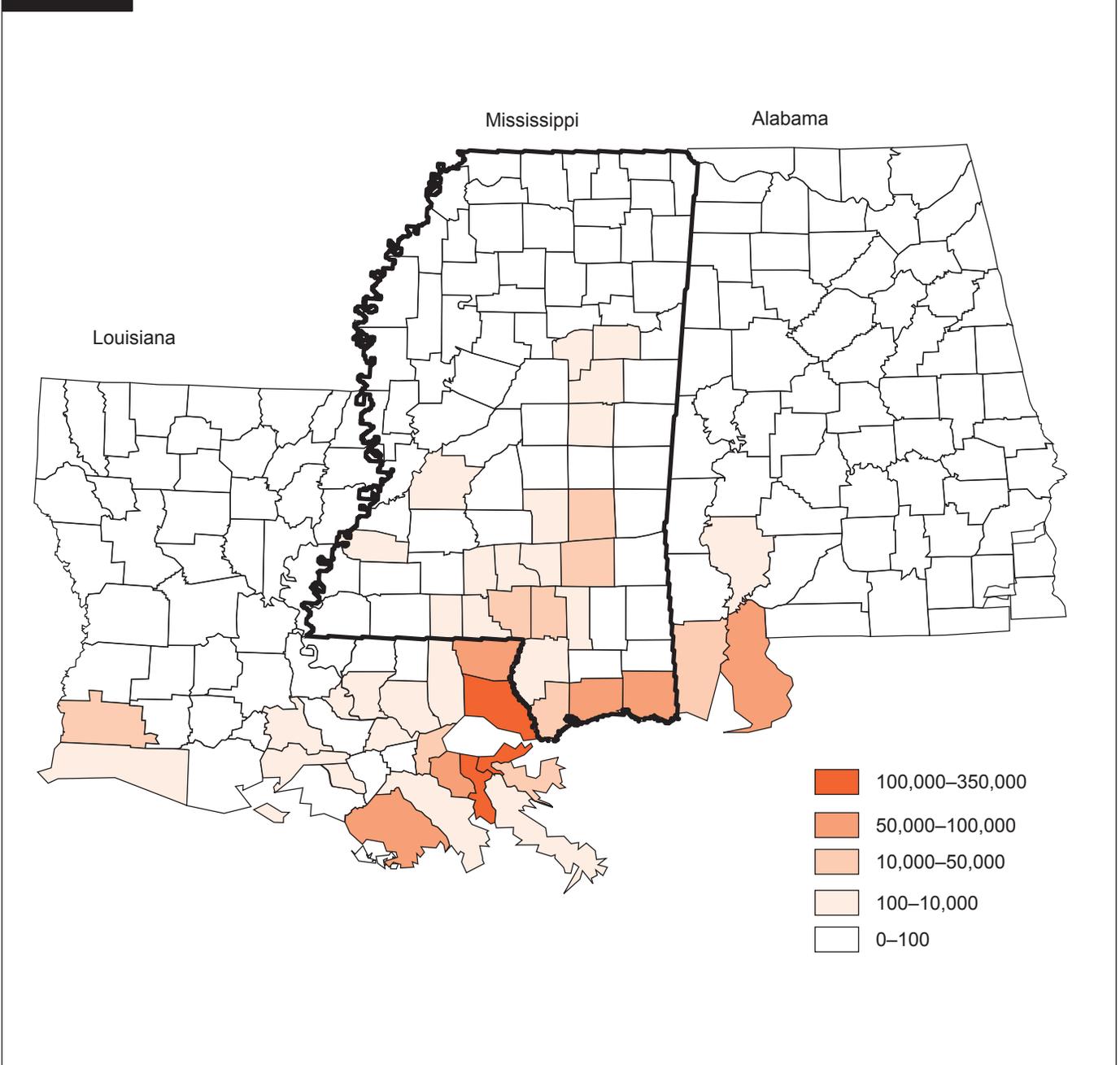
NOTE: Shading indicates eligible counties based on FEMA declarations through Oct. 7, 2005.

of Katrina evacuees increase from a little more than 1.15 million in October 2005 to approximately 1.58 million in December 2005. However, from December 2005 forward, the monthly estimates of the number of evacuees are all in the neighborhood of 1.5 million. This pattern of monthly estimates, shown graphically in chart 1, suggests that missing evacuees because of the CPS sampling constraints probably was relatively temporary, and any bias that this might introduce likely was slight.¹³

Who are the evacuees?

Table 1 summarizes the personal characteristics of evacuees, along with the characteristics of individuals who, prior to Katrina, were living in two areas: (1) counties in Louisiana, Mississippi, or Alabama that were affected by Katrina and (2) the remainder of the United States.¹⁴ These estimates indicate that the breadth of the evacuation was widespread. Contrary to some reports and

Map 2. Number of evacuees by county of origin, October 2005–October 2006

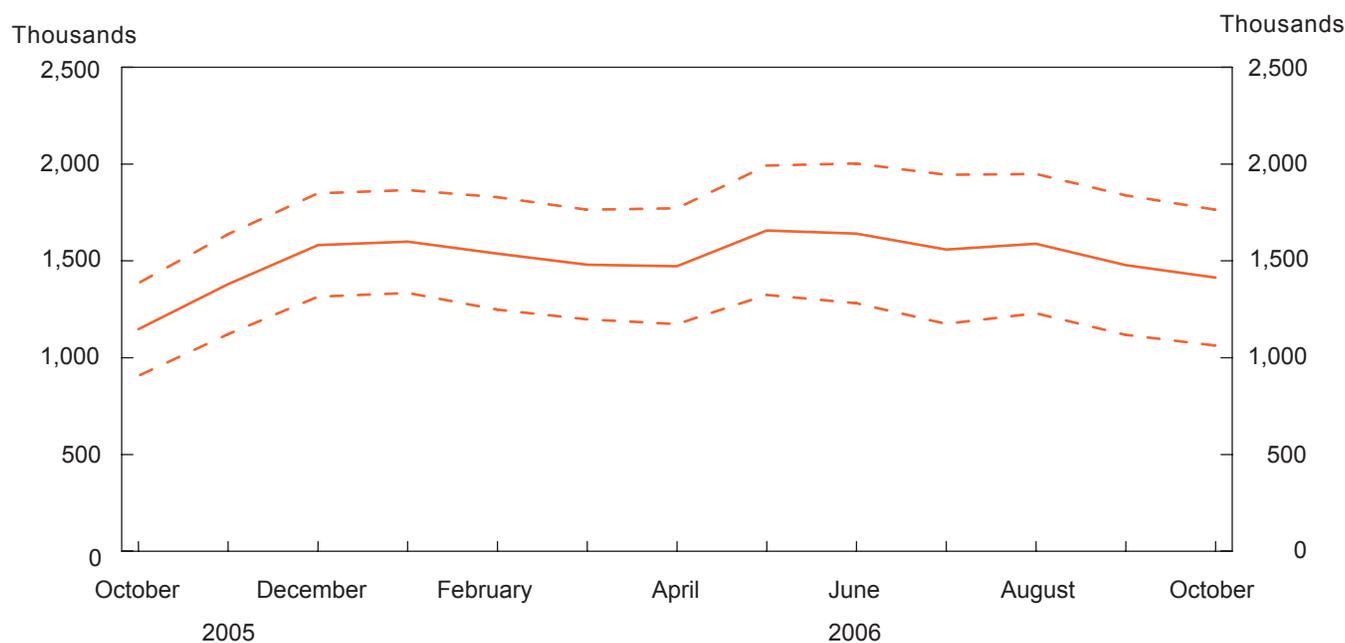


media images, Hurricane Katrina caused individuals of *all* economic and social groups to evacuate. Further, although there were some differences, the evacuation was spread *fairly uniformly* across demographic groups. For example, prior to the storm, 65 percent of the residents of counties affected by Katrina were white and 33 percent were black. Among those who evacuated, 63 percent were white and 33 percent were black. There is some indication that those from the least educated group of

residents and those from the most educated group of residents were slightly less likely to evacuate. There also is some indication that those identified as being of Hispanic origin may have been slightly more likely to evacuate. In general, however, there is no indication that any demographic group failed to evacuate.

Prior to the storm, the region affected by Katrina had a demographic composition quite different from that of the remainder of the United States. Before Ka-

Chart 1. Number of evacuees, by month, October 2005–October 2006



SOURCE: Current Population Survey.

NOTE: The estimated numbers of evacuees are shown on the solid line. The upper and lower bounds of the 90-percent confidence interval for the estimates are shown on the dashed lines.

trina, the region affected by the storm had a significantly larger proportion of residents who were black (33 percent) than did the remainder of the country (11 percent). The affected region also had a higher proportion of residents with relatively low levels of education. Specifically, prior to the storm, 18 percent of the residents in the region affected by the storm did not have at least a high school diploma, compared with 11 percent of the residents in the rest of the country. In addition, the affected region had a significantly smaller proportion of residents who identified themselves as being of Hispanic ethnicity (2 percent) or Asian (1 percent) than did the remainder of the country (13 percent and 4 percent, respectively).

Where are the evacuees?

Who returned? Although the breadth of the evacuation was widespread, there was a large degree of variation among the evacuees with regard to both the percentage that returned to where they were living prior to the hurricane and the locations to which individuals who did not return relocated. The following tabulation, compiled from the October 2005–October 2006 CPS data, presents

estimates of the percentage of all evacuees who returned to their prehurricane addresses and the percentage who returned to the counties in which they were living prior to the storm:

State	<i>Percent Returned to—</i>		<i>Difference</i>
	<i>Residence</i>	<i>County</i>	
Total.....	64.9	72.5	7.6
Louisiana.....	61.9	68.0	6.1
Mississippi	69.3	83.4	14.1
Alabama	88.4	94.4	5.9

The county estimate is based on a slightly broader definition of returning because it includes both those who returned to their address and those who did not return to their exact address, but returned to the same area they had lived in prior to the storm. Both definitions of returning are used to examine statistics describing the migration patterns of evacuees. However, the broader definition, based on the county to which the evacuee returned, is the one that is primarily used in the comparisons of the demographic characteristics and labor market status of those who returned and those who did not. This definition is preferable to the narrower one for

Table 1. Personal characteristics of evacuees and comparison groups, January 2004–July 2005 (comparison groups) and October 2005–October 2006 (evacuees)
[In percent]

Characteristic	Evacuees	Comparison groups (pre-Katrina)	
		Affected counties	Rest of United States
Age, years			
16 to 19.....	9.2	7.5	7.3
20 to 24.....	11.0	10.4	9.0
25 to 34.....	17.1	17.4	17.4
35 to 44.....	17.2	18.3	19.3
45 to 54.....	17.7	18.1	18.5
55 to 69.....	19.1	18.1	17.5
70 and older.....	8.7	10.3	11.1
Race			
White.....	63.3	65.2	82.1
Black.....	32.7	32.9	11.2
Asian.....	2.6	1.0	4.4
Other race.....	1.4	1.0	2.3
Hispanic ethnicity			
Non-Hispanic.....	96.4	98.3	87.1
Hispanic.....	3.7	1.7	12.9
Gender			
Female.....	54.5	53.2	51.7
Male.....	45.5	46.8	48.3
Education¹			
Less than high school....	16.4	18.2	14.7
High school.....	36.1	35.4	32.0
Some college.....	26.8	23.7	25.5
College.....	20.7	22.7	27.9
Marital status²			
Married.....	50.8	55.5	59.1
Was married ³	22.9	21.0	19.3
Never married.....	26.3	23.5	21.7
Number of children⁴			
0.....	69.4	68.9	68.5
1.....	14.4	13.9	12.9
2.....	9.4	11.3	12.2
3 or more.....	6.7	5.9	6.4
¹ For persons aged 25 and older. ² For persons aged 20 and older. ³ Widowed, divorced, or separated. ⁴ Number of own children under age 18, for persons aged 20 and older. SOURCE: Current Population Survey.			

these comparisons because individuals who relocated within the same county, but who changed residences, are arguably more comparable to individuals who returned to their residences than to individuals who relocated to a different county or to a different State. Despite changing residences, relocating within the same county usually allows one to maintain social ties and employment

opportunities.¹⁵

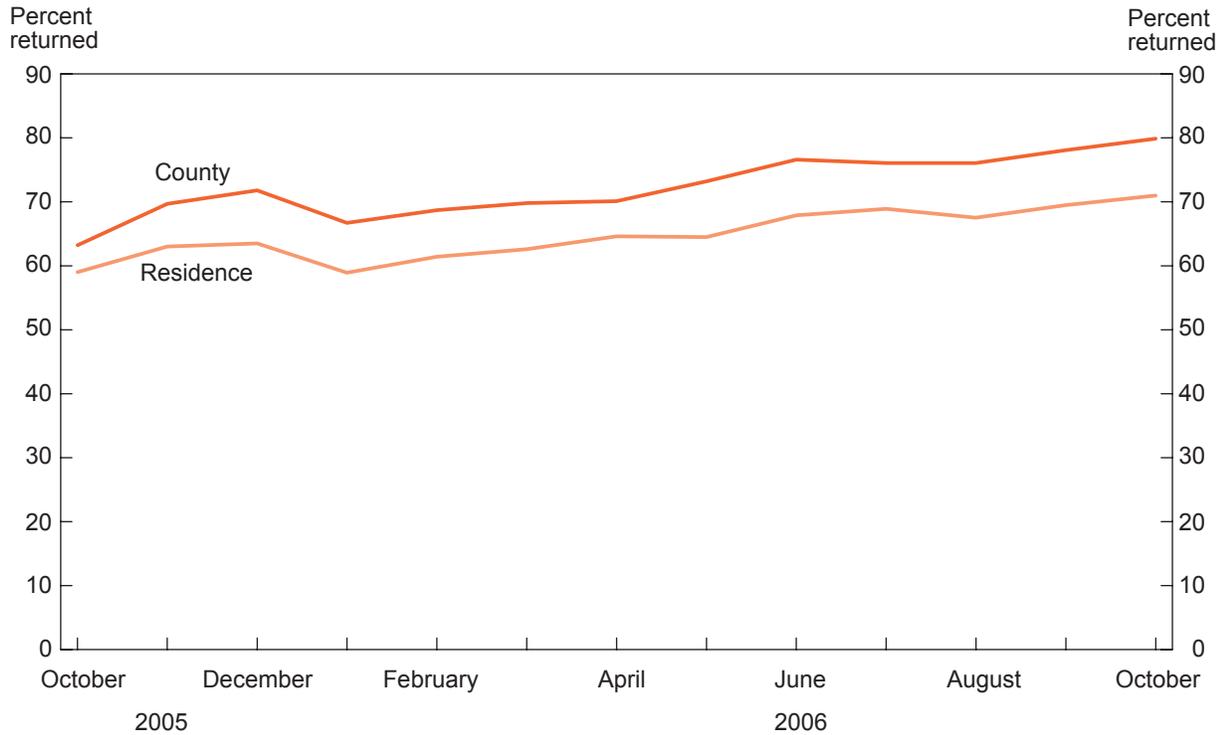
The estimates indicate that a large proportion of people who evacuated because of Katrina returned to the areas in which they were living prior to the storm. Over the three States and throughout the entire period from October 2005 to October 2006, an estimated 65 percent of evacuees returned to their prehurricane addresses, and 73 percent of evacuees returned to the counties in which they were living prior to the storm.

Across both definitions, the proportion of evacuees who returned is largest among evacuees from Alabama and smallest among evacuees from Louisiana: an estimated 88 percent of evacuees from Alabama, 69 percent from Mississippi, and 62 percent from Louisiana returned to their pre-Katrina addresses. On the basis of the broader definition of returning, 94 percent of evacuees from Alabama, 83 percent from Mississippi, and 68 percent from Louisiana returned to the area in which they were living prior to the storm. The lower percentage of evacuees who returned to Louisiana might be the result of greater physical damages resulting from Hurricane Katrina. It might also reflect the differential impact of Hurricane Rita, which struck about a month after Katrina and caused damage in Louisiana, but did not affect Mississippi or Alabama.¹⁶

Chart 2 is a graphical presentation of the estimates of the proportion of evacuees, by month, who returned to their pre-Katrina addresses, along with monthly estimates of the proportion of evacuees who returned to the counties in which they were living prior to the hurricane. The proportion of evacuees who returned increased gradually from January 2006 to October 2006. In January, 59 percent of evacuees had returned to their pre-Katrina addresses and 68 percent had returned to the counties in which they were previously living. By October 2006, the proportions had increased to 71 percent and 81 percent, respectively. Even as early as October 2005, 59 percent of evacuees had returned to their pre-Katrina addresses, including 54 percent of evacuees from Louisiana.

These proportions suggest that those who returned did so relatively quickly. Table 2, which contains estimates of the month of return for individuals who came back to their original addresses, supports this suggestion.¹⁷ Among evacuees from Louisiana who returned to their pre-Katrina addresses, 61 percent had returned by September 2005, and 92 percent had returned by October 2005, approximately 2 months after Katrina made landfall. The amount of time returnees from Mississippi and Alabama were away was even shorter: almost 88 percent of evacuees from Mississippi who returned had come back by Septem-

Chart 2. Percent of evacuees who returned to their pre-Katrina residences or county, by month, October 2005–October 2006



SOURCE: Current Population Survey.

ber 2005, and 95 percent had returned by October 2005. In Alabama, almost 95 percent of evacuees who returned had done so by September 2005, and 100 percent were back by October 2005.¹⁸ On the basis of the month and day that individuals who returned to their prestorm addresses reported returning, those living in Louisiana were away an average of 33 days, those living in Mississippi were gone an average of 20 days, and those living in Alabama were away an average of 12 days.

Where are the evacuees who relocated? When combined, the estimates plotted in chart 2, those listed in the tabulation on page 37, and those presented in table 2 indicate that a large proportion of individuals who evacuated because of Hurricane Katrina returned to their homes—and did so relatively quickly. However, the estimates also indicate that a sizeable number of evacuees relocated because of the storm and did not return to the areas in which they lived prior to the storm. Of those who evacuated, about 410,000 had not returned to their homes by October 2006, and of these, approximately 280,000 had not even returned to the counties in which they were living prior to the storm. Some evacuees who relocated moved quite long distances from their original homes. CPS interviewers found evacuees in nearly every State of the

Union (45 States and the District of Columbia). The data indicate, however, that the majority of Katrina evacuees who relocated remained in relatively familiar territory.

The top panel of table 3 contains estimates of the proportion of nonreturnees, defined as individuals *who did not return to their pre-Katrina addresses*, who resided in a given State at the time they were surveyed. The estimates are presented separately on the basis of the State in which these individuals lived prior to the storm. The bottom panel contains estimates of those *who did not return to the counties in which they were residing prior to the storm* (based on the broader definition of returning). Louisiana, Mississippi, and Alabama are listed separately as destination States in both panels of the table, so that the proportion of nonreturnees (under each definition) who remained in their original State can be estimated. The States adjacent to Louisiana, Mississippi, and Alabama also are listed separately, because these adjacent States received a sizeable proportion of evacuees from at least one State. The remaining U.S. States are combined into a single category.¹⁹

The estimates shown in the table indicate that 39 percent of Louisiana natives who relocated from their prehurricane addresses, and 28 percent of those who relocated from their pre-Katrina parishes, remained in Louisiana.

Table 2. Percent of returnees by month of return to pre-Katrina residence, by State, October 2005–July 2006

[In percent]

Month	Total	Louisiana	Mississippi	Alabama
Total	100.0	100.0	100.0	100.0
August 2005	7.8	5.0	14.3	16.1
September 2005	61.7	56.3	73.2	79.5
October 2005	23.5	30.2	7.7	4.5
November 2005	2.8	3.1	2.9	.0
December 2005	1.8	2.5	.2	.0
January 2006 .....	.5	.6	.3	.0
February 2006 .....	.7	.9	.2	.0
March 2006 .....	.6	.5	.9	.0
April 2006 .....	.1	.1	.0	.1
May 2006 .....	.4	.5	.0	.0
June 2006 .....	.2	.2	.2	.0
July 2006 .....	.1	.1	.0	.0

SOURCE: Current Population Survey.

Sixty-three percent of Mississippi natives who relocated from their pre-Katrina addresses, and 31 percent of those who relocated from their pre-Katrina counties, remained in Mississippi. Sixty percent of Alabama natives who relocated from their prestorm addresses remained in Alabama, while 17 percent of those who relocated from their pre-Katrina counties remained in the State. The percentages differ across definitions of returning due to the different analytical treatments of evacuees who returned to their pre-Katrina counties but not to their pre-Katrina residences. These evacuees are part of the sample used in the top panel (definition by residence), because they changed residences; they are counted as having migrated within the same State. By contrast, those same evacuees are *not* part of the sample used in the bottom panel (definition by county), because they stayed within the same county. As a result, within-State movers are a smaller share of the total in the bottom panel than in the top panel. Conversely, out-of-State movers are a larger share of the total in the bottom panel.

When the estimates in the top panel of table 3 are combined (see note 20 for the formula) with the proportion of evacuees who returned to their original addresses (see tabulation on page 37), 77 percent of Louisiana natives who evacuated because of Katrina are estimated to have continued to reside in Louisiana after the storm, while 89 percent of Mississippi natives and 95 percent of Alabama natives continued to reside in their States after the storm.²⁰ Although these estimates indicate that many evacuees remained within their State, they also indicate that Katrina caused considerable mobility between States: twenty-three percent of Louisiana natives affected by the storm, representing 8 percent of Louisiana's population in

2005, relocated to another State.²¹

Map 3 covers the entire United States (except Alaska and Hawaii) and uses shading to indicate the proportion of nonreturnees (definition by county) who were residing in a particular State. Examination of this map indicates that, although some evacuees relocated quite far away, the vast majority stayed relatively close to home. More than 81 percent of those who did not return to their original counties relocated to one of the following eight States in the southeast region: Louisiana, Mississippi, Alabama, Texas, Tennessee, Georgia, Florida, and Arkansas. These States either were affected by Katrina or were adjacent to the affected States.

Among States that received evacuees, Texas stands out in the map and in the estimates in table 3. The extent of Katrina-related migration to Texas suggests that both the labor force and the social services of the State may have been markedly affected. Thirty-seven percent of Katrina evacuees from Louisiana who did not return to their pre-Katrina parishes went to Texas, and so did 9 percent of evacuees from Mississippi who relocated outside their pre-Katrina counties. Tennessee, Georgia, and Florida may have been affected as well, but to a much lesser extent than Texas. The metropolitan areas that received the largest number of evacuees who relocated outside their pre-Katrina counties are Houston, New Orleans, Dallas, Baton Rouge, Atlanta, and Memphis.

Table 4 shows the average distance between the origin and destination counties for evacuees who did not return to their pre-Katrina counties.²² The average distance was 409 miles, with people who relocated from Louisiana being, on average, a slightly shorter distance away from their original counties (399 miles) than were those from

Table 3. Percent of evacuees who did not return to their pre-Katrina residences or counties, by State of destination and State of origin, October 2005–October 2006

State evacuee was residing in at time of survey (State of destination)	Total	Pre-Katrina State (State of origin)		
		Louisiana	Mississippi	Alabama
Did not return to pre-Katrina residence				
All States.....	100.0	100.0	100.0	100.0
Affected States:				
Louisiana.....	32.6	39.4	3.5	.0
Mississippi.....	11.4	1.2	62.6	.0
Alabama.....	4.2	3.2	2.7	59.9
Adjacent States: ¹				
Texas.....	26.3	31.4	5.0	.0
Tennessee.....	4.1	4.5	2.6	.0
Georgia.....	3.1	2.8	4.0	9.9
Florida.....	2.9	3.0	1.7	10.2
Arkansas.....	.6	.6	.7	.0
Other States ²	14.7	14.1	17.3	20.0
Did not return to pre-Katrina county				
All States.....	100.0	100.0	100.0	100.0
Affected States:				
Louisiana.....	24.8	27.6	6.5	.0
Mississippi.....	4.8	1.4	30.6	.0
Alabama.....	4.1	3.8	5.1	17.0
Adjacent States: ¹				
Texas.....	33.7	37.4	9.3	.0
Tennessee.....	5.2	5.4	4.7	.0
Georgia.....	4.0	3.4	7.4	20.6
Florida.....	3.7	3.6	3.1	21.0
Arkansas.....	.7	.7	1.3	.0
Other States: ²	18.9	16.8	32.1	41.4

¹ States adjacent to the affected States.

² States other than the affected States and other than the adjacent States.

SOURCE: Current Population Survey.

Mississippi (469 miles) or Alabama (584 miles). The estimates also indicate that there was a large degree of variance in how far away evacuees relocated from their pre-Katrina counties. Twenty-five percent of these evacuees relocated 10 miles or less from their pre-Katrina counties, while 25 percent relocated 461 miles or more, and 10 percent relocated at least 839 miles, from their pre-Katrina counties.²³

Demographics and the decision to return

Although the demographic composition of evacuees reflects the composition of prestorm residents of the Katrina-affected region, the probability of returning varies considerably by demographic group. Table 5 shows the proportions of evacuees in various demographic groups who returned to their pre-Katrina addresses and the proportion who returned to their pre-Katrina counties. (The discussion that follows employs the county-based definition of returning, but the patterns are similar for

the definition based on address.) The table indicates that the probability of returning increases with age (with the exception of teenagers, whose migration behavior likely depends on their parents' decisions): fifty-seven percent of evacuees 20 to 24 years old returned to their pre-Katrina counties, compared with 78 percent of evacuees 45 to 54 years old and 83 percent of evacuees 55 to 69 years old.

The table also indicates that several demographic groups, including blacks, persons who had never married, and persons with lower levels of education, were much less likely to return than were individuals in other racial, marital, or educational groups. Specifically, 54 percent of black evacuees returned to their pre-Katrina counties, compared with 82 percent of white evacuees; and 61 percent of never-married evacuees returned, compared with 78 percent of married evacuees. The differences among educational groups are less marked, but the estimates indicate that evacuees without a high school diploma were less likely to return than were those with more education: sixty-

Table 4. Distance (in miles) between destination and origin counties of nonreturning evacuees, October 2005–October 2006

State evacuee was residing in at time of survey (State of destination)	Total ¹	Pre-Katrina State (State of origin)	
		Louisiana	Mississippi
All States.....	409	399	469
Affected States:			
Louisiana.....	66	64	150
Mississippi.....	70	104	58
Alabama.....	300	332	131
Adjacent States: ²			
Texas.....	378	367	710
Tennessee.....	381	392	286
Georgia.....	432	460	382
Florida.....	414	475	(³)
Arkansas.....	464	473	(³)
Other States ⁴	1,110	1,120	1,029

¹ Includes evacuees whose pre-Katrina State is Alabama.
² States adjacent to the affected States.
³ Sample size too small to estimate average distance reliably.
⁴ States other than the affected States and other than the adjacent States.
 NOTE: The numbers of miles are averages for evacuees who did not return to their pre-Katrina counties.
 SOURCE: Current Population Survey.

affected the ability to work of both those who returned and those who did not? Alternatively, were evacuees who went back to their pre-Katrina areas readily able to return to employment and those who did not return able to easily integrate into the labor markets in which they found themselves? To help shed light on these questions, using data from October 2005 to October 2006, table 6 presents unemployment rates, employment-population ratios, and labor force participation rates for all those who evacuated, for those who returned to their pre-Katrina counties (returnees), and for those who did not return (nonreturnees).

As mentioned earlier, the analysis presented here uses the broader definition of returning. This definition arguably captures the level of labor market disruption that faced those who had relocated, because both those who returned to their former addresses and those who returned to the counties in which they resided prior to the storm are likely to have close to the same opportunities to return to their former employers. To evaluate the effect of the storm on evacuees, their labor force measures are compared with those of individuals not affected by the storm (residents of unaffected areas who are not classified as evacuees) in three geographic areas: the entire Nation, the three affected States (Louisiana, Mississippi, and Alabama), and the five States

(Texas, Arkansas, Tennessee, Georgia, and Florida) adjacent to the affected States. Estimates for the latter two groups of States are presented in an attempt to reflect any distinct regional economic conditions that might exist. Chart 3 presents monthly comparisons of the unemployment rates, employment-population ratios, and labor force participation rates for evacuees and for residents of unaffected areas nationwide (excluding evacuees). Chart 4 shows monthly estimates for evacuees who returned to their pre-Katrina counties and for evacuees who did not.

The estimates in table 6, chart 3, and chart 4 indicate that evacuees faced considerable difficulty with regard to the labor market, and those who did not return fared worse than those who did return. As indicated by the employment-population ratios in table 6, evacuees were less likely to be employed than were those unaffected by the storm: the employment-population ratio of evacuees (51.7 percent) was 11 percentage points lower than the ratio among residents of unaffected areas nationwide (63.2 percent), as well as among residents of unaffected areas in the adjacent States (62.6 percent). Furthermore, evacuees were seeking employment and unable to find work or were laid off from jobs at a much higher rate than either of the other two groups: the unemployment rate for all evacuees was 12.1 percent, compared with unemployment rates of 4.7 percent for residents of unaffected areas nationwide and 4.4 percent for residents of unaffected areas in the adjacent States.²⁴

Chart 3 indicates that the labor market situation for evacuees in the months immediately after the storm was considerably worse than later in the period examined. For example, the employment-population ratio for evacuees was 44.0 percent in October 2005, but had increased to 54.9 percent by October 2006. Also, the unemployment rate for evacuees declined over time, and the gap between the unemployment rate for evacuees and the rate for residents of unaffected areas nationwide narrowed. However, despite the narrowing of the gap, in October 2006—more than a year after Katrina reached shore—the unemployment rate of evacuees (9.3 percent) was still more than double the unemployment rate of the latter group (4.1 percent).

The inability of evacuees to be gainfully employed seems to have been particularly acute among those who did not return to their pre-Katrina counties. As shown in table 6, the employment-population ratio for nonreturnees was 26 percentage points lower than the ratio for residents of unaffected areas nationwide (37.1 percent and 63.2 percent, respectively) and approximately 20 percentage points lower than the employment-population ratio for evacuees who returned to their pre-Katrina counties (37.1 percent and

Table 5. Percent of evacuees who returned to their pre-Katrina residences or counties, by personal characteristics, October 2005–October 2006

Characteristic	Returned to residence	Returned to county
Age, years		
16 to 19.....	63.5	71.2
20 to 24.....	44.5	56.8
25 to 34.....	53.8	64.8
35 to 44.....	65.0	70.6
45 to 54.....	68.9	77.5
55 to 69.....	78.3	82.6
70 and older.....	76.0	80.0
Race		
White.....	73.2	81.9
Black.....	48.5	53.8
Asian.....	80.7	84.5
Other race.....	42.9	58.1
Hispanic ethnicity		
Non-Hispanic.....	65.2	72.5
Hispanic.....	57.1	72.2
Gender		
Female.....	63.7	71.1
Male.....	66.3	74.1
Education¹		
Less than high school.....	59.3	67.9
High school.....	72.5	77.9
Some college.....	64.9	74.9
College.....	70.3	74.7
Marital status²		
Married.....	72.8	78.2
Was married ³	64.3	73.4
Never married.....	50.7	61.1
Number of children⁴		
0.....	66.1	74.0
1.....	61.3	68.8
2.....	64.7	71.9
3 or more.....	62.2	66.9

¹ For persons aged 25 years and older.

² For persons aged 20 years and older.

³ Widowed, divorced, or separated.

⁴ Number of own children under age 18, for persons aged 20 years and older.

SOURCE: Current Population Survey.

57.3 percent). The unemployment rate for evacuees who did not return was 30.6 percent, compared with an unemployment rate of 6.0 percent for evacuees who returned and 4.7 percent for residents of unaffected areas nationwide. Furthermore, the estimates in table 6 indicate that the higher unemployment rate of nonreturnees is due to these workers' inability to find new employment: very few nonreturnees were classified as unemployed because they indicated that they expected to be recalled to their former employer within the next 6 months.

The differences in labor force status between returnees and nonreturnees after the storm might reflect differences that existed between those groups prior to the storm. Further analysis indicates that differences between groups in individual and family characteristics (including those characteristics listed in table 5) can account for about 25 percent of the difference in the unemployment rate between returnees and nonreturnees. By contrast, differences in these characteristics can account for only about 5 percent of the difference in the employment-population ratio and cannot account for any part of the difference in the labor force participation rate.²⁵ Thus, although individual and family characteristics can explain *some* of the differences in labor force status between returnees and nonreturnees, a substantial proportion of those differences cannot be explained by such characteristics.

Interestingly, among both returnees and nonreturnees who were employed, self-employment rates appear to be relatively high compared with self-employment rates among those who were employed in the affected counties before the storm. In the 19 months prior to the storm, the average self-employment rate among those who were employed was 7.3 percent, while after the storm, the self-employment rate of employed returnees was 11.3 percent and the self-employment rate of employed nonreturnees was 9.5 percent. It is not possible to determine from these estimates whether these evacuees were self-employed prior to the storm or whether they turned to self-employment after the storm as a means of finding employment. However, the lower employment-population ratio of evacuees, in combination with their higher self-employment rates, further suggest that evacuees were particularly unsuccessful in finding employment other than self-employment.

The graphs presented in chart 4 suggest that, although the unemployment rate was always higher and the employment-population ratio always lower for nonreturnees than for returnees, the decline in the unemployment rate for evacuees displayed in chart 3 was driven almost entirely by the changes among nonreturnees. Similarly, the rise in the employment-population ratio among evacuees was driven largely by changes among nonreturnees (although early in the recovery period after the storm, the employment-population ratio among returnees increased markedly). These estimates suggest that the labor market situation improved over time for evacuees who did not return to their pre-Katrina counties. Nevertheless, the estimates indicate that even more than a year after the storm, nonreturnees had not integrated well into the labor market and still were facing considerable difficulties in obtaining employment. In October 2006, only 44.9 percent of nonreturnees were

Table 6. Labor force measures for Katrina evacuees and for residents of unaffected areas, October 2005–October 2006

U.S. population	Labor force participation rate	Employment-population ratio	Unemployment rate	Proportion of unemployed—		Proportion of employed who are self-employed
				Laid off	Looking	
Evacuees						
All.....	58.8	51.7	12.1	9.1	90.9	10.9
Nonreturnees.....	53.4	37.1	30.6	4.0	96.0	9.5
Returnees.....	60.9	57.3	6.0	17.7	82.3	11.3
Residents of unaffected areas¹						
Nationwide	66.2	63.2	4.7	12.6	87.4	11.1
Affected States ²	61.5	58.6	4.7	12.5	87.5	8.7
Adjacent States ³	65.4	62.6	4.4	8.8	91.2	11.2

¹ Excluding evacuees.² Louisiana, Mississippi, and Alabama.³ Texas, Arkansas, Tennessee, Georgia, and Florida.

SOURCE: Current Population Survey.

employed, and their unemployment rate was 18.9 percent.

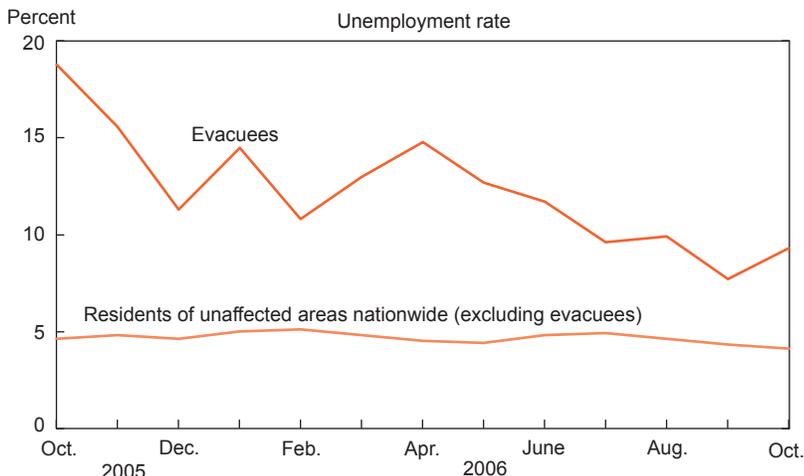
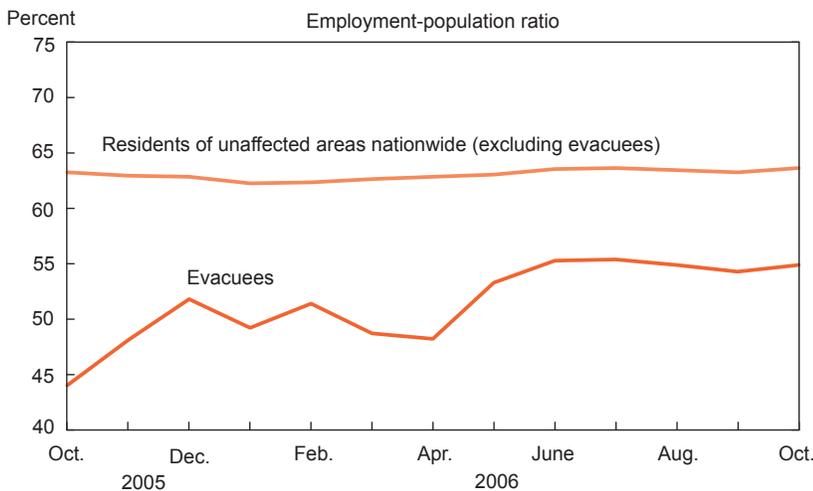
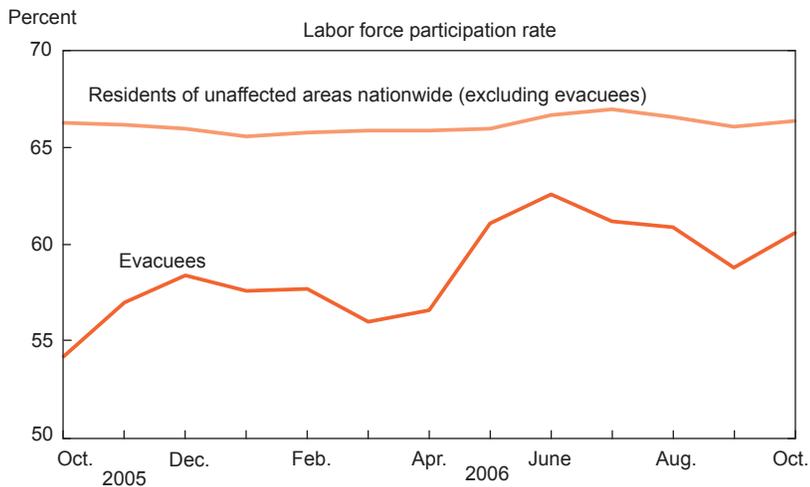
Income and governmental and private assistance

Given that nonreturnees fared so poorly in the labor market compared with returnees and residents of unaffected areas nationwide, it is natural to ask whether nonreturnees have received compensating assistance either from the government or from friends or relatives. The 2006 Annual Social and Economic Supplement (ASEC), administered as a supplement to the monthly CPS for all sampled households in March and for part of the sampled households in February and April, can shed some light on this issue.²⁶ In order to construct poverty measures, the ASEC collects information on income that individuals received from various governmental and private sources in the calendar year prior to when the survey was administered. The ASEC collects information on the following governmental sources of income: unemployment insurance, welfare payments (including Temporary Assistance for Needy Families, or TANF), Social Security, Supplemental Security Income, workers' compensation from a State government, veterans' benefits, survivors' income from a government agency, educational assistance from the government, disability income from a government agency, and retirement income from State or local governments or from the U.S. Railroad Retirement Board. In addition, the ASEC collects information on whether an individual's household (as opposed to the individual him- or herself) received food stamps.²⁷ The ASEC also collects information on the following private sources of income: interest income, dividend income, rental income, child support, alimony, retirement income from

a private source (including company pensions and regular payments from individual retirement accounts, KEOGH accounts, and 401(k) accounts), educational assistance from a private source, disability income from a private source, and regular financial assistance from friends or relatives not living in the household.

Because Katrina struck the gulf coast in August 2005, if evacuees received assistance from the government or from friends or relatives in the last 4 months (September, October, November, and December) of that year due to the storm, the receipt of these benefits should be captured in the 2006 ASEC, and the proportion of individuals participating in these programs should be higher than what was observed in the Katrina-affected counties a year earlier. Different levels of income from private sources other than friends or relatives also may provide evidence of the comparative pre-Katrina wealth of returnees compared with nonreturnees, because this other private income includes dividend and interest payments that could have been received prior to or after the storm. Table 7 reports per-person averages of total income, earnings from employment, income from governmental sources, and income from private sources in 2004 for all residents of Katrina-affected counties and in 2005 for returnees and nonreturnees, with nonreturnees defined as those who did not return to their pre-Katrina counties.²⁸ Table 7 also reports the proportion of individuals in each of these three groups who received any governmental assistance, along with the proportion who participated in five particular government programs that might be expected to support evacuees in the wake of the storm: unemployment insurance, welfare, Social Security, Supplemental Security Income, and Food

Chart 3. Monthly estimates of labor force measures: evacuees and residents of unaffected areas, October 2005–October 2006



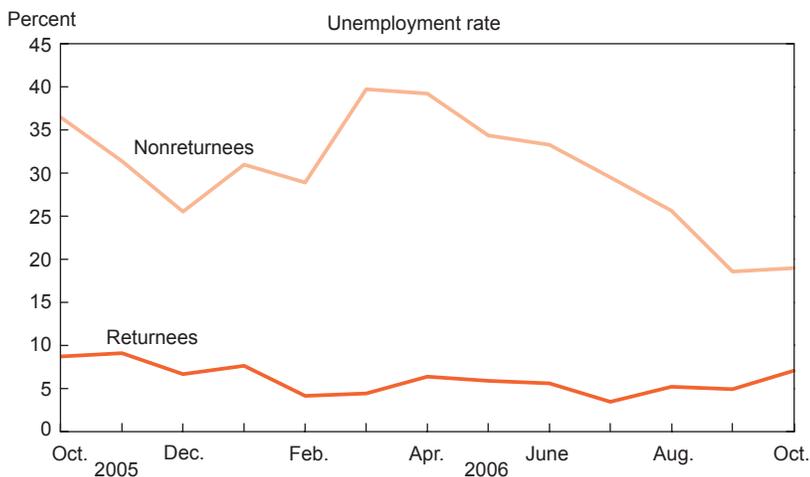
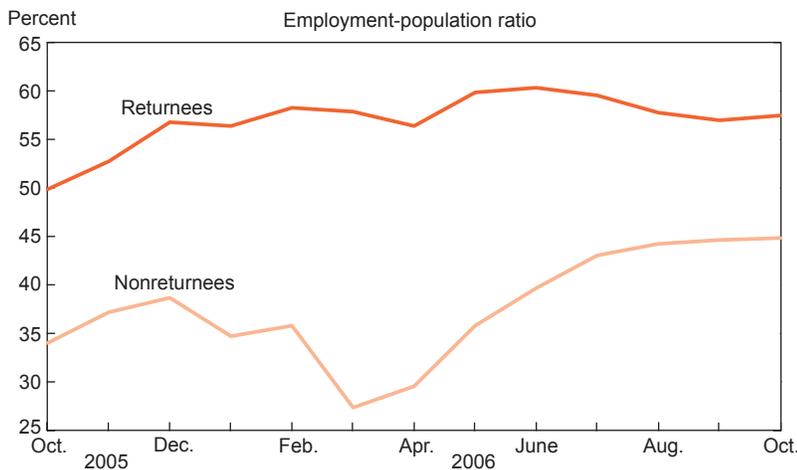
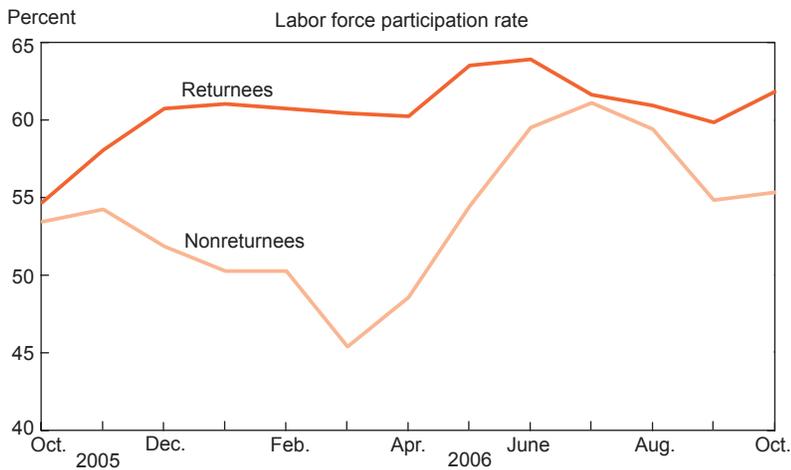
SOURCE: Current Population Survey.

Stamps.²⁹ The proportion of individuals in each group who received income from private sources also is reported in table 7, along with the proportion that received regular monetary assistance from friends or relatives. (As noted earlier, the other sources of private income—such as dividends, interest, child support, and alimony—might be somewhat less influenced by Katrina.)

Consistent with how returnees and nonreturnees fared in the labor market, on average, returnees had \$3,731 less, and nonreturnees had \$9,291 less, earnings from employment in 2005 than did those who resided in Katrina-affected counties in 2004.³⁰ These lower earnings are consistent with a loss of at least some time of employment by evacuees, especially nonreturnees.

The estimates in table 7 also indicate that when all sources of governmental income are taken into account, nonreturnees were more likely than returnees to receive some form of governmental assistance, and the proportion of both types of evacuees who received such assistance was higher than the proportion of residents of the affected counties receiving assistance prior to the storm. For example, nonreturnees were more than twice as likely as returnees to receive unemployment insurance payments (9.9 percent compared with 4.9 percent), and both groups were more likely to receive unemployment insurance payments than were those who resided in the Katrina-affected counties before the storm. This higher incidence of receipt of unemployment insurance payments probably reflects the increase in job loss due to the storm, but it also might reflect the relaxation of benefit rules in State unemployment insurance programs in response to the storm. In addition, nonreturnees were more likely than returnees to receive welfare payments and Supplemental Security Income payments. Each of these types of payment could be a direct response

Chart 4. Monthly estimates of labor force measures: returnees and nonreturnees, October 2005–October 2006 (using county definition of returning)



SOURCE: Current Population Survey.

to the storm; however, it is not possible to determine whether that is so from the descriptive estimates presented here. These differences between returnees and nonreturnees might be due in part to differences in the prestorm economic situations of returnees and nonreturnees and thus differences in the propensity of returnees and nonreturnees to receive these types of assistance prior to the storm. Nonetheless, a separate analysis of labor force status indicates that the majority of the differences in outcomes between returnees and nonreturnees cannot be attributed to prestorm differences between the two groups, suggesting that the storm did indeed contribute to differences in the receipt of governmental assistance between the groups.³¹

Perhaps the most interesting difference with regard to governmental assistance is the markedly greater proportion of both returnees and nonreturnees who received food stamps, compared with residents of Katrina-affected counties in 2004. Only 6.3 percent of residents of Katrina-affected counties lived in a household that received food stamps in 2004, whereas 20.3 percent of returnees and 30.6 percent of nonreturnees resided in a household that received food stamps in 2005. These estimates indicate that the Food Stamp program may have provided relatively immediate assistance to evacuees and offered a way for both returnees and nonreturnees to support themselves in the wake of the storm. Although the Food Stamp program appears to be the most important program in this regard, other governmental programs also appear to have supported evacuees after the storm. Excluding food stamps, an estimated 31.8 percent of returnees and 42.4 percent of nonreturnees received some form of governmental assistance.

The estimates in table 7 indicate that

Table 7. Income and assistance from various sources, 2004 and 2005

Income or assistance, and source	Residents of affected counties, pre-Katrina (2004)	Returnees (2005)	Nonreturnees (2005)
Per-person average income: ¹			
Total income	\$28,779	\$26,424	\$19,386
Earnings	24,150	20,419	14,859
Income from governmental sources	3,011	3,548	3,434
Income from private sources (excluding earnings)	1,672	2,481	1,098
Percent receiving income or assistance:			
Received any governmental assistance ²	30.2	41.5	54.7
Unemployment insurance	1.3	4.9	9.9
Welfare (including TANF ³) .....	.7	1.3	7.9
Social Security	19.5	20.5	17.8
Supplemental Security Income	2.5	1.4	4.3
Food stamps	6.3	20.3	30.6
Received income from private sources ⁴	42.6	39.1	39.3
Friends or relatives (regularly)	1.4	1.4	2.7
¹ In 2005 dollars. ² Proportion of individuals who received any income from the governmental sources listed in this table, plus the following: workers' compensation from a State government, veterans' benefits, survivors' income from a government agency, educational assistance from the government, disability income from a government agency, and retirement income from State or local governments or from the U.S. Railroad Retirement Board. Income from these additional government programs is included in "Income from governmental sources." ³ Temporary Assistance for Needy Families. ⁴ Proportion of individuals who received any income from private sources, including interest income, dividend income, rental income,		child support, alimony, retirement income from a private source (including company pensions and regular payments from individual retirement accounts, KEOGH accounts, and 401(k) accounts), educational assistance from a private source, disability income from a private source, and regular financial assistance from friends or relatives not living in the household. "Income received from private sources" is the value of income from all of these sources. SOURCE: 2005 and 2006 Annual Social and Economic Supplement to the Current Population Survey (CPS); basic CPS data from February, March, and April of those years.	

relatively few evacuees reported receiving regular monetary income from friends or relatives, although the proportion of nonreturnees who reported receiving income from this source was slightly larger than the proportion of returnees. In general, the estimates in the table indicate that neither the government nor friends or relatives provided massive amounts of income to compensate Katrina evacuees for their loss of earnings due to the storm, because the average total income of evacuees (both returnees and nonreturnees) was lower than the average total income of residents of the affected counties prior to the storm.

SINCE HURRICANE KATRINA STRUCK THE GULF COAST in August 2005, there has been much interest in how those affected by the storm have fared. The issue was examined in this article using data that were collected with a set of Katrina-related questions that were added to the CPS. The analysis of responses to these questions indicates that approximately 1.5 million people aged 16 years and older evacuated from their homes and that the breadth of the

evacuation was widespread: the demographic composition of evacuees mirrors the demographic composition of those residing in the Katrina-affected counties prior to the storm. The analysis of responses also indicates that evacuees who returned to the areas from which they evacuated differed markedly from those who did not in terms of demographic characteristics, labor force status, and income.

Of those who evacuated, about 71 percent had returned to their homes by October 2006, but around 29 percent—about 410,000—had not returned to their homes, and of these, approximately 280,000 had not even returned to the counties in which they were living prior to the storm. Further, although about 45 percent of evacuees who did not return to their homes continued to reside in the same State, Katrina also caused large numbers of people to move between States: an estimated 23 percent of Louisiana natives affected by the storm, representing 8 percent of Louisiana's population in 2005, no longer live in the State.

Blacks, young adults, and single people who never had

married were significantly less likely to return to their homes after the storm than were whites, individuals over the age of 55, and married persons. An examination of the proportion of evacuees who were employed and of their unemployment rates suggests that individuals who evacuated because of the storm suffered greatly—particularly those who did not return to the counties in which they were living prior to Katrina. In October 2006, more than a year after the storm struck, less than half of those who had not returned to their prestorm counties were employed, and the unemployment rate of these nonreturnees was almost 19 percent. These lower levels of

employment appeared to translate into lower earnings for evacuees. Further, although there is some evidence that evacuees received food stamps and unemployment insurance in response to the storm, it appears that neither assistance from governmental sources nor assistance from friends or relatives fully compensated evacuees for their lower earnings. The estimates of evacuees' poststorm locations, labor force status, and incomes all support the notion that evacuees (especially nonreturnees) fared poorly in the wake of the storm. Katrina undoubtedly caused massive physical damage, but the storm also profoundly affected the lives of people in its path. □

Notes

ACKNOWLEDGMENT: We are grateful to Chuck Pierret and seminar participants at the Bureau of Labor Statistics and the 2007 Society of Labor Economists meetings for useful comments. The views expressed in this article are solely those of the authors and do not reflect the views of the Bureau of Labor Statistics.

¹Miles Kimball, Helen Levy, Fumio Ohtake, and Yoshiro Tsutsui, "Unhappiness after Hurricane Katrina," NBER Working Paper 12062 (Cambridge, MA, National Bureau of Economic Research, 2006).

²See, for example, Shaila Dewan, "Road to New Life After Katrina is Closed to Many," *New York Times*, July 12, 2007; Peter Whoriskey, "Study Says Storms Displaced More People than Estimated," *Washington Post*, Aug. 8, 2007; and Michael Abramowitz and Michael A. Fletcher, "Bush Says Gulf Coast Isn't Forgotten," *Washington Post*, Aug. 30, 2007.

³See the following articles in the August 2006 issue of the *Monthly Labor Review*: Molly Garber, Linda Unger, James White, and Linda Wohlford, "Hurricane Katrina's effects on industry employment and wages," pp. 22–39; Lawrence S. Cahoon, Diane E. Herz, Richard C. Ning, Anne E. Polivka, Maria E. Reed, Edwin L. Robison, and Gregory D. Weyland, "The Current Population Survey response to Hurricane Katrina," pp. 40–51; and Sharon P. Brown and Patrick Carey, "Conducting the Mass Layoff Statistics program: response and findings," pp. 70–75.

⁴For a detailed description of the discussion and resolution of issues related to conducting the CPS in the wake of Hurricane Katrina, see Cahoon and others, "The Current Population Survey response."

⁵Initially, it was thought that information about the county and State that relocated evacuees came from would assist in the adjustment of CPS population weights to account for the movement of people from one area to another. However, the U.S. Postal Service's National Change of Address file was obtained by the Census Bureau in a timely manner and proved to be of sufficient quality that it was not necessary to use the CPS data for the aforesaid purpose.

⁶Due to the desire to start collecting information quickly, the first set of Katrina questions was not tested extensively prior to its inclusion in the CPS. The entire set of questions (including the additional ones) was cognitively tested prior to its inclusion in June 2006. These questions were tested primarily on evacuees who were living in the Washington, DC, metropolitan area. The testing revealed no cognitive difficulties with the original set of questions among those who had relocated. However, several times the questions did evoke emotional responses from respondents.

⁷The CPS uses a 4–8–4 sample design in which an address is scheduled to be interviewed for 4 consecutive months, not interviewed for the next 8 consecutive months, and then interviewed again for the subsequent 4 months. Each calendar month, a new group of residential addresses starts this rotation pattern. Given this rotation pattern and the inclusion of the CPS Katrina questions from October 2005 to October 2006, households can be observed for up to 5 months. The average number of months that evacuees are observed in the CPS data is 4 months.

⁸A focus group of interviewers indicated that, because the wording of the questions was the same every month, some respondents who identified themselves as evacuees in a particular month did not answer the Katrina questions in a subsequent interview because they had already identified themselves as evacuees. Other respondents interpreted the first Katrina question (see box on page 34) as asking whether there were any *additional* (since the previous interview) household members who were evacuees. For the same reasons, some interviewers didn't ask the Katrina questions in a given month if the household roster was the same and the household had responded to the questions in an earlier month.

⁹These restrictions and refinements result in estimates of the number of Katrina evacuees and the number of evacuees who relocated that are different from those previously published by the BLS. In addition to the restrictions and refinements requisite for an individual to be classified as an evacuee enumerated in the text, it was required that the household screener be "yes" for an individual to be classified as an evacuee.

¹⁰The list of counties used in the analysis is based on FEMA disaster declarations for Hurricane Katrina through October 7, 2005, and includes 31 parishes in Louisiana (of a total of 64 in the State), 49 counties in Mississippi (of 82), and 11 counties in Alabama (of 67). No other States contained counties eligible for both public and individual disaster assistance. This list of counties differs slightly from that used in "Labor Market Statistics Prior to Disaster for Areas Affected by Hurricanes Katrina and Rita," published on the BLS Web site (<http://www.bls.gov/katrina>). That list refers to counties affected by Hurricane Katrina or Hurricane Rita (or both) and was based on FEMA declarations through September 30, 2005.

¹¹Figures are from the October 2005–October 2006 CPS.

¹²*Current Housing Unit Damage Estimates: Hurricanes Katrina, Rita, and Wilma* (U.S. Department of Housing and Urban Development, Office of Policy Development and Research, Feb. 12, 2006). This analysis was based on direct inspection of housing units to determine eligibility for FEMA housing assistance. The inspections that were carried out assessed damages resulting from Hurricane Katrina and two

other hurricanes from the fall of 2005 (Rita and Wilma).

¹³For January 2006, FEMA data on the number of hotel rooms occupied by people affected by Hurricane Katrina or Hurricane Rita (or both) can be used to construct an estimate of the effect of those living in hotels on the CPS estimates of the number of evacuees. As of January 22, 2006, FEMA reported that there were 26,879 hotel rooms occupied by Hurricane Katrina or Hurricane Rita evacuees. If there was an average of 3 people per hotel room and the individuals living in hotel rooms were added to the number of people identified as Katrina evacuees, then a reasonable estimate is that the CPS missed only about 4.8 percent of Katrina evacuees. This number would be an underestimate if the average number of people occupying a hotel room were greater than 3; at the same time, however, that number could be an overestimate because the number of occupied hotel rooms includes both those who evacuated because of Hurricane Katrina and those who evacuated because of Hurricane Rita. If the number of people per hotel room were assumed to be 5 rather than 3, the proportion of evacuees missed by the CPS would increase to approximately 7.7 percent. Hotels were not the only type of places at which evacuees could have been staying that were not in the CPS sample. For instance, large facilities such as the Houston Astrodome and emergency shelters set up in places of worship also were not included in the sample. However, anecdotal evidence indicates that the majority of these emergency shelters were no longer in use by January 2006. FEMA trailers set up at an existing address would be included in the CPS sample from which households could be drawn.

¹⁴The characteristics of those living in the counties affected by the storm and the characteristics of those living in the remainder of the United States were calculated from CPS data for January 2004 to July 2005. A comparison of the CPS estimates for those in the affected counties with estimates generated by the Census Bureau from American Community Survey data for these counties indicates a large degree of concordance between the two sets of estimates.

¹⁵An analysis using the narrower definition of a returnee (based on residence) is available from the authors upon request.

¹⁶An estimated 32.0 percent of evacuees who originally lived in Louisiana did not return to their prestorm parishes. Combining this estimate with the estimate of the total number of Louisiana natives who evacuated because of Katrina yields the result that approximately 360,672 Louisiana natives moved to another State or parish because of Katrina. This estimate is consistent with an independent estimate by the Louisiana Recovery Authority and the Louisiana Department of Health and Hospitals ("Migration Patterns: Estimates of Parish Level Migrations due to Hurricanes Katrina and Rita," 2006 Louisiana Health and Population Survey). Using data they collected via a door-to-door survey to supplement 2006 Census Bureau population estimates, these organizations estimate that, approximately 15 months after Katrina struck, 398,000 individuals who originally lived in 18 southern Louisiana parishes had moved to another State or parish because of the storm. The periods covered by this estimate and the estimate from the CPS data are similar. The estimate from Louisiana staff could be expected to be slightly higher than the CPS estimate because the former includes those who evacuated because of either Katrina or Rita, whereas the latter includes only individuals who evacuated because of Katrina. By contrast, the CPS estimate might be expected to be slightly larger because it includes any individuals who lived in the FEMA-designated disaster area, which includes 31 parishes in Louisiana.

¹⁷Because the question about the date that individuals returned was asked only of those who returned to the same address, similar estimates cannot be generated for individuals who returned to the counties in which they resided prior to the storm, but did not return to their previous address. The estimates in table 2 stop in July 2006 because the

survey instrument did not record the year individuals returned. Without an indication of that year, it is not possible to distinguish individuals who returned in August 2005 from those who returned in August 2006. The year was not included in the survey instrument because, at the time that the Katrina questions were inserted into the CPS, it was anticipated that the questions would be administered for only a couple of months. August 2005 returnees were individuals who reported that they returned between August 27 and August 31.

¹⁸The estimates of the proportion of evacuees who returned to their pre-Katrina addresses and the length of time they were away are not meant to suggest that evacuees who returned quickly did not suffer significant property damage or other severe economic hardships.

¹⁹Among these remaining States, the five with the largest proportion of evacuees (regardless of their State of origin) who had not returned to their pre-Katrina counties are Illinois, California, Missouri, Virginia, and Ohio.

²⁰Let a be the proportion of natives of a State who returned to their residences and b be the proportion of nonreturnees who remained in their State. Then the proportion of evacuees who reside in the State of their pre-Katrina residence is $a + (1 - a) \times b$.

²¹This estimate is based on the Census Bureau's estimate of Louisiana's total population (July 1, 2005) and an estimate of the proportion of the Louisiana population that is 16 years and older, taken from the 2000 Census.

²²The CPS data identify the county of the evacuee's residence at the time of the survey and (for most evacuees) the county of his or her pre-Katrina residence. Table 4 uses the latitude and longitude of a county's center of population, computed by the Census Bureau from 2000 census data, to identify the location of the county. The table makes use of the Haversine formula (from Roger W. Sinnott, "Virtues of the Haversine," *Sky and Telescope*, August 1984, p. 159), which takes account of the curvature of the earth, to compute the distance (in miles) between the county of origin and the destination county. For use in the formula, the radius of the earth is assumed to be 3,956 miles.

²³As points of reference for the figures listed in table 4, consider the distance from New Orleans to Baton Rouge (71 miles), Houston (321 miles), and Las Vegas (1,508 miles).

²⁴Table 6 reports the proportion of those classified as unemployed who said they were on layoff from a job to which they expected to return, as well as the proportion of those who said they were looking for work. Although the proportion of unemployed evacuees who returned to their pre-Katrina counties and who were on layoff from a job was slightly higher than the corresponding proportion among unemployed residents of unaffected areas in the entire Nation, virtually all of the difference in unemployment rates between evacuees who did not return and the latter individuals is due to a higher proportion of nonreturning evacuees looking for work and being unable to find employment. The proportion of the unemployed who were on layoff was substantially lower among evacuees who did not return than among residents of unaffected areas nationwide. Nearly 18 percent of returnees who were unemployed said that they were on layoff from a job to which they expected to return, compared with 4 percent of nonreturnees. Among residents of unaffected areas nationwide, approximately 13 percent of the unemployed were on layoff from a job to which they expected to return.

²⁵Jeffrey A. Groen and Anne E. Polivka, "The Effect of Hurricane Katrina on the Labor Market Outcomes of Evacuees," BLS Working Paper 415, March 2008.

²⁶ASEC formerly was known as the Annual Demographic Survey and

has been informally referred to as the March Income Supplement.

²⁷The Food Stamp program is listed separately from the other sources of assistance in this article, for two reasons: (1) the Food Stamp program applies to households, while the other sources of income apply to individuals; and (2) food stamps are considered an in-kind benefit rather than an income benefit.

²⁸The estimates in table 7 are based on 718 pre-Katrina, 440 returnee, and 182 nonreturnee observations that were weighted with the use of the supplement weight.

²⁹The amount of income received from the first four of these programs is not listed separately because the sample of participants in some of these programs is small. Note that a monetized value of food stamps is not included in “income from governmental sources.”

³⁰The 2004 estimates are expressed in 2005 dollars. In nominal dollars, the difference in earnings between evacuees (in 2005 dollars) and residents of affected counties in 2004 (in 2004 dollars) is \$2,941 for returnees and \$8,501 for nonreturnees.

³¹Groen and Polivka, “The Effect of Hurricane Katrina.”