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What Shocks Precipitate Homelessness?

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Abstract

Income shocks appear to be the main shocks that precipitate homelessness. Rent shocks are less important.

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Individual narratives of homelessness often emphasize some precipitating event: “I was fine until....” Economists label these events “shocks”: unexpected changes in circumstances. This paper studies those shocks.

Understanding the shocks that precipitate homelessness is important for homelessness prevention: knowing what these shocks are is a first step in devising policies to reduce their incidence or mitigate their effects.

These shocks, however, should not be labeled “causes of homelessness.” Reducing their incidence or severity is one way to reduce homelessness, but it is not the only way.

To see why, think of a person’s housing consumption at any time as the sum of a permanent component—the average consumption of a person’s life—and a transitory component representing the vicissitudes of the moment. Let the transitory component be distributed normally with mean zero each period. Since very few homeless people are homeless for most of their lives, think of the permanent component as some level of housing better than homelessness. More rigorous, realistic, and flexible versions of this model can be found in O’Flaherty 2009.

Then the probability that the person is homeless in any period can be reduced either by raising the permanent component or reducing the variance of the transitory component. Similarly a city can have a great deal of homelessness either because the average permanent component is low or because the transitory components are volatile.

Most attention to date has been devoted to analyses of the permanent component and most policies have concentrated on raising the permanent component. Most cross-section regressions, for instance, are motivated by models of the permanent component of housing

demand (see O’Flaherty 2004 for a review). Policies that provide subsidized housing or treat substance abuse, for instance, seek to raise a household’s permanent housing consumption.

The purpose of this paper is to switch some attention to the transitory component. The effectiveness for reducing the probability of homelessness of a unit change in the standard error of the transitory component, relative to a unit change in the permanent component, depends on the distance between the permanent component of housing and homelessness. If the permanent component is very close to homelessness, almost any negative shock will precipitate homelessness; reducing volatility will make very little difference. If the permanent component is very far from homelessness, only the most serious shocks will precipitate homelessness; reducing volatility will be very effective in reducing homelessness.

The great difficulty that researchers have experienced in predicting transitions to homelessness (Shinn et al. 1998, Shinn and Baumohl 1998) suggests that the latter is the more relevant case for most people who enter homelessness. Researchers can probably observe pretty well a household’s permanent housing component. Households become homeless either because their permanent component is close to homelessness and they receive a negative shock of a size that is fairly common; or because their permanent component is far from homelessness and they receive a large and rare negative shock. In the former case, transitions to homelessness are easy to predict; in the latter they are hard to predict. The empirical finding that transitions to homelessness are hard to predict thus suggests that the permanent component is often far from homelessness. Thus policies that reduce volatility are likely to be effective in reducing homelessness.

It is useful therefore to understand what shocks precipitate homelessness. This note contributes to that understanding in three ways. In the next section, I examine standard

questionnaire results in which individuals are asked about the “causes” of their homelessness. I use the Cuomo Commission’s 1992 survey. These results indicate that income and sobriety shocks are important for single adults and that relationship shocks are important for families, but are ambiguous about whether income or housing price shocks are also important for families. Standard surveys are not precise enough for our purposes.

Therefore in sections 2 and 3, I turn to national data to find out what sort of shocks poor people have to worry about, whether they become homeless or not. Section 2 uses the American Housing Survey to look at rent changes. Surprisingly, only one other paper (Genesove 2003) has done this, and that paper was asking a different question. I also look at gentrification as a particular source of rent shocks. Section 3 looks at income shocks with data from the Panel Study of Income Dynamics. These two sections indicate that income shocks are probably much bigger than rent shocks for poor people in general, and thus probably also for people at most risk of being homeless. Section 4 concludes.

1. What do homeless people say?

It appears that several different kinds of shocks lead to homelessness, but the most common are shocks to income and shocks to health or sobriety. Rent shocks are not so important.

There are obvious difficulties in interpreting open-ended subjective questions that do not define key terms like “reason” carefully. If a person is homeless because her income is too low to pay the rent, is she homeless because of high rent or low income?

One possible interpretation of responses is that many people will tend to attribute their homelessness to the adverse change that most closely preceded their entry into homelessness.

That is, they will attribute a change in their housing consumption to the most recent serious change in their lives. If a person’s income fell right before it became impossible for her to pay her rent, she will attribute her homelessness to a fall in income; if her rent went up then, she will attribute her homelessness to a rent rise. If this theory of question-answering is accurate, then the reasons that people give for homelessness are the shocks that led to homelessness. Even if this theory of question-answering is only roughly accurate, the answers can give us some idea of the type of shocks that people at risk of homelessness are likely to encounter.

The 1992 report of the New York City Commission on Homelessness—usually known as the Cuomo commission—contains one of the most thorough surveys (New York City Commission, 1992). Their instrument asked an open-ended question to residents of city shelters: “8.What would you say is the main reason you became homeless?” Table 1 summarizes the answers they received.

Table 1: Self-Assessed Reasons for Becoming Homeless
New York City Shelter Residents, 1991

	Family shelters N= 485	Single shelters N=487
1. Lack of employment	9%	27%
2. Welfare problem	2	1
3. Drugs/alcohol	8	28
4. Illness/injury	2	4
5. Jail/arrest	0	3
6. Relocated to city	2	2
7. Social/theological, misc.	9	7
8. Lack of rent money	21	11
9. Eviction	8	2
10. Housing too crowded	12	1
11. Fire	5	4
12. Unsafe housing	5	1

13. Breadwinner left/separated	3	3
14. Family conflict	11	7
15. Physical abuse	2	0
16. Maternity	1	0

Reasons are numbered solely for future reference.

Source: New York City Commission, 1992, table 3.

This table reveals considerable ambiguity about the type of shocks that lead to homelessness. For instance, is “lack of rent money” an income shock or a rent shock? Table 2 therefore gives upper and lower bounds for the types of shocks that economists generally talk about.

Table 2: Lower and Upper Bounds on Impact of Shocks on Homelessness

New York City Shelters, 1991

	Families	Single adults
Income shocks		
Lower: 1, 2	11%	28%
Upper: 1, 2, 8	32	39
Health and addiction shocks		
Lower: 3, 4	10	32
Upper: 3,4, 15	12	32
Relationship shocks		
Lower: 13, 14, 15	16	10
Upper: 10, 13, 14, 15	28	11
Rent shocks		
Lower: 12	5	1
Upper: 8,9, 10, 11, 12	51	19

Codes correspond to reasons listed in table 2.

Source: Revision of table 1.

Thus income and health/addiction shocks are pretty clearly the major shocks that single adults face. Relationship and income shocks are important for families, but we cannot understand whether rent shocks are important for families or not.

Self-assessments, however, make it difficult to gauge the importance of mental health shocks, which do not appear in these tables. The sample also consists of people in shelters at a point in time, not people who entered shelters. Thus people who stay a long time in the shelter system are more heavily represented in this sample than short-stayers, relative to the numbers that would appear in a sample of entrants.

Since these self-assessments carry considerable ambiguity, we turn to national data on some of the shocks that poor people might face.

2. Rental housing price risk

A. How do you measure it?

A tenant becomes worse off when the price of the apartment that is best for her, all things considered, goes up. Since moving is expensive, the best apartment is almost always the one she is occupying now, and so increases in a particular apartment's rent, unaccompanied by improvements in the quality of the apartment or neighborhood, are usually bad for its tenant.

The harm to the tenant, however, need not be the full amount of the rent increase because she can move. Because people are moving all the time for reasons unrelated to changes in rent, even those who do not move and do not live in apartments where rent rises can still be harmed by the increase. Consider a family living in apartment A. Suppose that at roughly same time, rents rise for apartment B and the family suffers a setback of some kind. If they would have

moved to apartment B if rents had not risen there, then they are worse off because of the rent rise for apartment B, even if (or actually, because) they never lived there.

Thus assessing the size of the risk that households face from rental price increases is not straightforward. The ideal measure of the impact on a household of a change in the rental price schedule is the equivalent variation (EV). The EV is the change in wealth just sufficient to make the household as well off with the new rental schedule as it was with the old. When rents generally rise, the EV is positive: it is the minimum cash transfer the household would need to maintain its original utility. When rents generally fall, the EV is negative: it is the maximum the household would be willing to pay to enjoy the privilege of confronting the new rental price schedule instead of the old. Thus the EV gives the (negative of the) wealth shock equivalent of a rental schedule shock—hence its name.

Unfortunately, standard measures of rent volatility do not capture EV. Some data sets follow apartments; other data sets follow households. While both types of data sets have problems, apartment-based data are probably more informative about the distribution of EVs induced by changes in the rental price schedule. The basic reason for this is that households move for reasons other than rent changes, and these moves add noise to household-based information.

To be precise, consider a simple housing market without vacancies, homelessness, new construction, abandonment, or household rearrangement. Suppose rents change for some reason between period 1 and period 2. The arithmetic average rent change measured on a household basis has to be the same as the arithmetic average rent change measured on an apartment basis, because both equal the difference between average rent in period 1 and average rent in period 2. Similarly, the average change in log rent measured on a household basis has to be the same as

the average change in log rent measured on an apartment basis. Both average rent changes have to be greater than the average EV.

Consider household h . Let $q_t(h), t = 1, 2$, denote its apartment in period t , and let $p_t(q)$ denote the period t rent for apartment q . The standard consumer theory result about $EV(h)$, the EV for household h , is

$$EV(h) \leq p_2(q_1(h)) - p_1(q_1(h)).$$

The right-hand side of the inequality is the change in rent for the apartment in which household h originally resided. Thus the distribution of rent changes by apartment (weakly) stochastically dominates the distribution of EVs.

Manipulation of the above inequality yields

$$EV(h) \leq [p_2(q_2(h)) - p_1(q_1(h))] - [p_2(q_2(h)) - p_2(q_1(h))].$$

This says that the EV for household h is less than its actual change in rent—the first expression in square brackets—minus the increase in period 2 rent it incurred by moving—the second expression in square brackets. This inequality relates EVs to the household-based measure of rent changes.

The EV is not necessarily smaller than the household-based rent change. Consider a general increase in rents. If this induces the household to move to a cheaper apartment (evaluated at the new rents), the upper bound on EV is greater than the household-based rent change. But if the general increase in rents induces the household to move to a more expensive apartment (because, for instance, it is relatively cheaper than it used to be), then the upper bound could be less than the household-based rent change. (Intuitively, consider living originally in a low quality unit. Suppose rents of low quality units go up 20 percent and rents of high quality units go up by 1 percent, but are still greater than the rents of low quality units. Because the high

quality premium is less, the household moves to the high quality unit. Its EV is less than its rent increase because part of the rent increase reflects higher quality.) For every household that moves to a cheaper apartment, some household moves to a more expensive apartment (all evaluated at the new rent), and so changes in rent are likely to induce moves in both directions.

Thus apartment-based rent changes seem to be a better approximation to EV, since they always differ from EV in the same direction. In addition, households move for a variety of reasons other than rent shocks, and these moves add noise to any household-based attempt to measure EVs.

B. Empirical evidence on rent shocks

The literature contains very little information about the distribution of rent changes. The major exception is Genesove (2003), but he is mainly concerned with the proportion of nominal rent changes that are precisely zero, and uses data that are now old. A number of papers like Sinai and Souleles (2005) are about the volatility of rent, but they report only average changes, not the distribution of changes.

Therefore we calculated apartment-based distributions of nominal rent changes from the American Housing Survey (AHS) between 1999 and 2005. These were years of steady, small, but non-trivial inflation. Our concern is with the incidence of large positive rent shocks—shocks that might lead fairly directly to homelessness or make a major difference in someone’s life. The time period for observing rent changes in the AHS is two years (1999 to 2001, 2001 to 2003, and 2003 to 2005).

The all-urban consumer price index component for rent of primary residence rose 8.9% from 1999 to 2001; 5.9% from 2001 to 2003; and 6.1% from 2003 to 2005 (Gibson 2008). In each period, however, a substantial minority of apartments experienced rent increases far above these averages.

Table 3 shows the proportion of apartments with large rent increases. Observations in this table are unsubsidized apartments that were in the AHS sample in both years. We excluded rent increases over 100% because they might be errors.

Table 4: Proportion of Unsubsidized Apartments with Large Biennial Rent Increases, 1999-2005

% of apartments with more than 20% increase

Bedrooms	<u>1999-2001</u>	<u>2001-2003</u>	<u>2003-2005</u>
0	19%	17%	19%
1	16	12	12
2	14	11	11
3	13	13	13
4	10	13	14
5	16	8	13

% of apartments with more than 40% increase

Bedrooms	<u>1999-2001</u>	<u>2001-2003</u>	<u>2003-2005</u>
0	9	6	6
1	6	5	5
2	5	4	5
3	5	6	6
4	5	8	9
5	2	6	9

% of apartments with more than 40% increase

Bedrooms	<u>1999-2001</u>	<u>2001-2003</u>	<u>2003-2005</u>
0	5	4	2
1	3	3	2
2	2	2	2
3	3	3	4
4	3	2	3
5	--	2	5

Source: American Housing Survey.

Thus around 10-20% of apartments experience large increases (over 20%), while around 5-9% experience increases over 40% and 3-5% experience increases over 60%. Big increases are generally more common for studio apartments than for larger apartments.

If households were originally spending around 40% of their income on rent, a 40% rent increase entails a rental shock equal to 16% of income, and so around 5% of households might be exposed to a rental shock of this size. Remember, however, that because of the possibility of moving, the distribution of apartment-based increases stochastically dominates the distribution of EVs.

Are poor people more likely to experience large rent shocks? To examine this question, we isolated a set of apartments in each year that poor families might reasonably occupy. We began with the standards for number of bedrooms that the Department of Housing and Urban Development (HUD) recommends for the typical housing authority administering the housing choice voucher program (US Department of Housing and Urban Development, 2001, p. 5-42). From these standards, for each apartment, we found the maximum number of people who could occupy that apartment. We say that the apartment is a “possible poor person apartment” (PPPA) if the rent is not more than 40% of the income of the richest poor family of the appropriate size. Essentially, an apartment is a PPPA if some poor family could occupy it without either violating HUD voucher guidelines on overcrowding or paying more than 40% of its income in rent. Obviously, not all PPPAs will be occupied by poor families, but we expect almost all poor families to occupy PPPAs.

In table 4, we look at large rent increases among PPPAs. We do this in two different ways because our selection criterion (being a PPPA) is not independent of our key variable (rent

increases). First we look at rent increases among apartments that were PPPAs at the beginning of the period. Since transitory low rent can make an apartment a PPPA at the beginning of the period and mean regression would make it experience a large increase, this procedure provides something of an upper bound on rent increases that apartments that are “permanently PPPAs” experience. Second, we look at rent increases experienced by apartments that are PPPAs at the end of the period. Since a large increase might move an apartment out of the PPPA category, this approach gives us a lower bound on the proportion of rent increases among “permanent PPPAs.” The first-period and second-period estimates are thus upper and lower bounds respectively.

Table 4: Proportion of Unsubsidized Apartments Poor People Could Afford with Large Biennial Rent Increases, 1999-2005

% of apartments with more than 20% increase

Bedrooms	1999-2001		2001-2003		2003-2005	
	<u>2001 def.</u>	<u>1999 def</u>	<u>2003 def.</u>	<u>2001 def.</u>	<u>2005 def.</u>	<u>2003 def.</u>
0	12%	16%	19%	21%	2%	16%
1	9	20	9	17	8	18
2	11	17	8	15	8	15
3	11	15	11	16	12	16

% of apartments with more than 40% increase

Bedrooms	1999-2001		2001-2003		2003-2005	
	<u>2001 def.</u>	<u>1999 def</u>	<u>2003 def.</u>	<u>2001 def.</u>	<u>2005 def.</u>	<u>2003 def.</u>
0	5%	7%	5%	5%	2%	8%
1	2	9	3	9	3	8
2	4	7	3	6	3	7
3	4	6	4	7	5	8

% of apartments with more than 60% increase

Bedrooms	1999-2001		2001-2003		2003-2005	
	<u>2001 def.</u>	<u>1999 def</u>	<u>2003 def.</u>	<u>2001 def.</u>	<u>2005 def.</u>	<u>2003 def.</u>
0	5%	7%	5%	5%	2%	8%
1	2	9	3	9	3	8
2	4	7	3	6	3	7
3	4	6	4	7	5	8

0	2%	4%	5%	5%	0	4%
1	1	6	1	5	2	5
2	2	3	1	3	1	4
3	2	3	2	3	3	5

Source: American Housing Survey

Comparing tables 3 and 4, we see that in almost all cases, the proportion of all apartments experiencing a given rent increase is between the upper and lower bounds for PPPAs: most of the time, rental increases in apartments that some poor people might comfortably rent are like those in the rest of the market. The exceptions are studio apartments. PPPA studio apartments had unambiguously smaller rent increases between 1999 and 2001 than did non-PPPA studio apartments. For later periods, different parts of the distribution are affected differently.

These calculations consider only apartments that were available (though not necessarily occupied) in both of a pair of years. What about abandonment and new construction? One way to account for changes in stock is to compare rents at different deciles of the distribution between different years. When we did this, we found small and pretty much uniform increases—nothing that would appear to be a rent shock. If people were absolutely free to move and everyone stayed in the same order by rent, few people would experience significant rent shocks. But mobility is not perfect, and so comparing deciles underestimates the probability of large rent shocks.

Thus renters in general and poor renters in particular do face noticeable rental market risk: even in relatively tranquil macroeconomic times, there is a 5-10% chance of being hit with a crushing rent increase. In the next section, however, we will see that income shocks are much bigger.

C. Gentrification

Gentrification is one type of rent-related shock that might cause homelessness. If demand by more affluent people raises rents or causes housing unit losses in neighborhoods once inhabited by poor people, some of those original poor people could end up homeless. Most of the empirical evidence suggests that this process is not common, but this evidence is indirect, and no direct tests have been attempted.

Two bodies of literature touch on this topic. Several papers have examined whether poor people are more likely to move out of apartments in gentrifying neighborhoods than apartments in non-gentrifying neighborhoods. Vigdor (2002) looked at the Boston metropolitan area and found that less educated householders in revitalizing zones were not more likely to exit their apartments than less educated householders in other zones were. Similarly, Freeman and Braconi (2004) found in New York City that poor households in gentrifying neighborhoods were less likely to move than poor households in other neighborhoods. Both of these studies used apartments as units of observation: Vigdor's data came from the American Housing Survey, and Freeman and Braconi's from the New York City Housing and Vacancy Survey. Freeman (2005), by contrast, follows households, not apartments, by using the Panel Study of Income Dynamics (PSID), a national survey. He also finds that living in a gentrifying neighborhood does not increase mobility for poor households.

These studies do not rule out the possibility that gentrification is serious negative shock for some poor households; they indicate only that it appears not to be a serious problem for the average poor or low-skilled household in a gentrifying neighborhood. For instance, it could be the case, as Braconi and Freeman speculate, that gentrification improves a neighborhood's amenities, and so makes the neighborhood more attractive to many poor people. This may induce some poor households who would otherwise have moved to a better neighborhood to

stay—perhaps those whose situation in life is improving. But rising rents may cause other poor people—maybe those whose situation is not improving or those who do not value amenities so highly—to leave the neighborhood. In other words, gentrification may change which poor households leave a neighborhood, not how many leave.

Freeman's data set is probably the best for checking this possibility. The PSID could tell whether poor household whose income was rising reacted to gentrification differently from poor households whose income was falling or flat. In summary, the mobility literature gives us no reason to think that gentrification is forcing large numbers of poor people into homelessness, but it has not ruled out all possibilities.

The other relevant body of literature asks what neighborhoods homeless people last lived in; we would like to know whether gentrifying neighborhoods were in some sense disproportionately represented. At least two studies look at the intra-metropolitan distribution of previous addresses, but neither looks explicitly at gentrification. The two studies are Culhane et al. (1996) and Wong and Hillier (2001).

The findings of these studies are similar: homeless households last lived in the poorest, most heavily African-American neighborhoods. *Ceteris paribus*, homeless families are more likely to come from neighborhoods with vacant and boarded up buildings. While these studies do not look at how neighborhoods are changing, nothing in the descriptions of the neighborhoods in which homeless people last lived suggests gentrification.

Culhane et al. and Braconi and Freeman both use data from New York City in the 1990s, and both divide the city into sub-boroughs. Culhane et al. list four sub-boroughs from which the overwhelming majority of homeless families come, and Braconi and Freeman list sub-boroughs they considered to be gentrifying. Only Harlem makes both lists.

Of course, gentrification could also raise homelessness by raising metropolitan-wide rents, or at least rents in a wide area that includes much more than the neighborhoods to which gentry are moving. No one has investigated this possibility. Since such an investigation would probably require a model of metropolitan rent determination, and gentrification would probably be endogenous in such a model, even stating such a proposition coherently would be difficult.

Thus at this point it does not appear that gentrification adds noticeably to the risks of becoming homeless that poor people face.

3. Income volatility

Income has become more volatile since 1970 (Gottschalk and Moffitt 1994, Dynan, Elmendorf, and Sichel 2007, Keys 2008), and so has food consumption (Gorbachev 2007, Keys 2008). The increase in volatility has been greatest among African-Americans, households headed by women and high school dropouts, and households in the lower part of the permanent income distribution. Thus the greatest increases in income volatility have occurred among the demographic groups most likely to become homeless.

Income volatility appears to be much greater than rent volatility. Keys (2008), for instance, calculates the variance in log family transitory income for various demographic groups in the 1990s. Transitory income is the difference between a family's actual income and its permanent income, which is its average income over a long period, corrected for life-cycle effects. Gottschalk and Moffitt (1994) pioneered this decomposition, and they found that serial correlation in transitory income, calculated in this fashion, was very small. Thus the percentage change in family income over two years should be approximately distributed normally with mean zero and variance equal to twice the variance in transitory log income that Keys found

(because the difference between two independent variables has variance equal to the sum of the variances of each variable). This relationship allows us to compare estimated income changes over two years with the rent changes over two years that we saw in tables 3 and 4.

Table 5 shows the result of this calculation for several demographic groups. The proportion of families estimated to be experiencing large percentage decreases in income is considerably larger than the proportion of apartments showing large rent increases. Since incomes are several times as large as rents, income shocks seem to be a much greater threat to household well-being than rent shocks. This conclusion is consistent with the self-reports in the Cuomo Commission survey that we presented in table 2.

Table 5: Proportion of Families Experiencing Large Decreases in Income

Estimates over a Two-Year Period in the 1990s

Group	Transitory income variance	>20% fall	>40% fall	>60% fall
White men	0.14	18%	4%	1%
HS dropout	0.21	27	13	6
Low income*	0.20	26	12	5
Black men	0.41	38	28	21
Black women	0.36	36	25	18

*Lowest quartile of permanent income.

Source: Panel Study of Income Dynamics. Derived from table 2.5 of Keys (2008) under assumption of normal distribution of log transitory income.

It should be noted that tables 3 and 4 use nominal rents, while table 5 uses real incomes. Nominal income decreases would be smaller than real income decreases, but the difference is not large enough to reverse the conclusion that income shocks are a greater threat to households at risk of homelessness than rent shocks.

Bound and Krueger (1991) and Bound et al. (1994) find that about a third of the variance in reported year-to-year changes in reported earnings is measurement error, and this would bias up our estimate of the proportion of households experiencing large income decreases. But rent is also measured with error, and we have little reason to suspect that the measurement of rent is greatly worse than the measurement of income.

4. Conclusion

Income shocks appear to be the main shocks that lead to homelessness. Gentrification does not appear to be an important source of shocks. Programs that stabilize income like social insurance and access to capital markets (for saving as well as borrowing) are thus likely to be more effective in preventing homelessness than programs that aim to stabilize rents like rent control and anti-gentrification measures. Empirical work should test this more directly.

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