

Public Housing and Labor Supply

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Outline of Talk

- I. Introduction and motivations
- II. Background and budget constraints
- III. Methods and data
- IV. Results from CPS, SIPP, and HUD data
- V. Conclusions and future directions

Outline of Talk

- **I. Introduction and motivations**

I. Introduction and motivations

Big program, but ignored by economists

- \$19 billion spent on public housing in 1992
- Approximately same amount as spent on SSI, food stamps, or former AFDC program.
- Moffitt (1992) hardly mentions public housing.
- Only 4 of 214 *Journal of Human Resources* articles published between 1994-1999 make any mention of it; 42 articles mention AFDC.

Introduction, continued

- Nearly 20% of female heads participate in public housing projects or Section 8 vouchers
- Compare that with 27% participation in AFDC among female heads – not much smaller
- Of those on AFDC, 40% also get housing subsidy

Introduction, continued

Recent legislation

- Public housing was hardly affected by the welfare reform legislation in 1996, known as PRWORA.
- A more recent piece of legislation, known as the **Quality Housing and Work Responsibility Act** of 1998, made some important changes to projects and Section 8. This legislation was implemented after the data used in this paper.

Introduction, continued

Terms used in paper

- There are a multitude of housing subsidies administered by U.S. Housing and Urban Development (HUD)
- **Public Housing** will refer to the low-rent projects, Section 8 vouchers/certificates
- **AFDC** will refer to cash welfare, even though it is now called TANF. The data in this study is before the 1996 welfare reform

Introduction, continued

Terms used in paper

- **FMR** stands for the “*Fair market rent*,” which is meant to represent the housing subsidy for all forms of public housing.
- Use this terminology is a bit loose, but little is lost.
- For projects, household receives an apartment.
- For certificates, subsidy is **contract rent - tenant's share**
- For vouchers, subsidy is the **payment standard - tenant's share**

Introduction, continued

Goals of this paper

- The eligibility rules for public housing create tax rates that are greater than 100%, known as the **public housing notch**.
- This occurs because the traditional breakeven formula for welfare programs does not hold. For most programs, $E^* = G/t$, so the income limit is mechanically related to the grant and tax rate.
- **Key question: how does the FMR, income limit, and public housing notch affect labor supply?**

Introduction, continued

Preview of results

- Use female headed households from 2 data sets, the 1990-1993 SIPP panels and the 1991-1996 March CPS. Both cover years 1990-1995.
- Use HUD data on project developments to examine rationing and administrative selection.
- Link SIPP and CPS to HUD data on subsidies and income limits.

Introduction, continued

Preview of results

- **Key empirical insight:** Public housing creates a unique “natural experiment” that allows researchers to examine the impact of subsidies.
- FMRs vary both geographically and over time. Both of these sources of variation are standard.
- FMRs also vary by the **sex composition**. Families with 1 boy & 1 girl get a 3 bedroom apartment, while families with 2 boys get a 2 bedroom apartment.

Introduction, continued

Preview of results

- Public housing rules create substantial labor supply distortions. Results on LFP robust across CPS and SIPP.
- \$180 increase in monthly subsidy leads to reduction in LFP of 3.6-4.4 percentage points from baseline of 70-74%. Small increase in AFDC participation (in the SIPP)
- SIPP results robust even with individual fixed effects.

Introduction, continued

Implications of results

- Policy changes that lower marginal tax rates (and reduce the notch) could increase work effort and reduce welfare dependency.
- The 1998 legislation went a little bit in that direction by capping rents in the projects.
- Work while in public housing could increase the number of “role models.” Some of the objectives of **Moving To Opportunity** might be achieved with changes in budget constraint.

Outline of Talk

- **II. Background and budget constraints**

Background and budget constraints

Institutional background

- **Low-rent public housing projects**
 - < Household offered specific apartment; “take-it or leave-it”
 - < 1.3 million households in projects
 - < 13,000 developments
 - < 3,300 housing authorities
 - < Households with children occupy 60% of projects

Background and budget constraints

Institutional background

■ Section 8 certificates

- < Household chooses apartment in private market that rents for less than or equal to the FMR and meets certain quality standards.
- < **Subsidy = contract rent - household's payment**
(generally 30% of earnings if working)
- < Cannot choose apartment that is more costly than the FMR
- < Certificates are more common, but are currently being phased out in favor of vouchers

Background and budget constraints

Institutional background

■ Section 8 vouchers

- < Household chooses apartment in private market that meets certain quality standards.
- < $\text{Subsidy} = \text{Payment standard} - \text{household's share}$
- < Can choose apartment that is more costly than the FMR, and pay for difference out-of-pocket.

Background and budget constraints

Institutional background

- **Section 8 vouchers and certificates**

- < Usually 60-90 days from issuance to find apartment; nontrivial number of vouchers/certificates go unused.
- < 1.3 million households receive this subsidy.
- < Neither CPS data nor SIPP data distinguishes between vouchers and certificates, so these distinctions are ignored in analyzing labor supply.

Background and budget constraints

Institutional background

■ Eligibility for public housing

- < Eligibility is based on (projected) annual gross income, and is adjusted for family size.
- < “**Very-low**” income limit is used. For a family of 4, this is 50% of median income in an area.
- < Small amount of admissions from families with income between 50-80% of median income – the “**low**” income limit.
- < In 1999, a third limit known as the “**extremely low**” income limit was added – 30% of median income.

Background and budget constraints

Institutional background

■ **Rationing of public housing**

- < Waiting lists of 1-2 years are common.
 - Central waiting list for projects; separate waiting list for vouchers. Can be on both at same time. Waiting lists distinguished by bedroom size.
- < Federal preferences were in place from 1988-1996
 - Homeless, involuntarily displaced, substandard housing
 - Rent/income ratio greater than 50%
- < Anti-skipping provisions from 1988-1996
 - Could not “cream-skim” applicants even though it would be financially advantageous to housing authority

Background and budget constraints

Institutional background

■ Rationing of public housing

- < Increased rationing has ambiguous effect on labor supply
 - Increased rationing **reduces incentive to follow rules** (e.g. very low income limit) to qualify ... thus, earn more money.
 - **Federal preferences** (e.g., rent/income ratio) that move applicant to top of waiting list become more important with increased rationing. One way to have high rent/income ratio is to have low income.
 - Increased rationing could reduce earnings for those *in public housing* who were thinking of leaving temporarily.

Background and budget constraints

Institutional background

- **Federal preferences offer unusual set of principles for targeting benefit**
 - < Homeless preference – those with the lowest valuation of housing
 - < High (rent/income) ratio – those with the highest valuation of housing

Background and budget constraints

Institutional background

- **Housing authority's objective function is not clear**
 - < As mentioned before, could “cream skim” applicants in order to minimize costs and perhaps achieve income mixing
 - < May have tastes for redistribution (and thus target toward the poorest households), but federal law indicates that cream-skimming is an issue

Background and budget constraints

Institutional background

- **Isn't there an easy way to solve the rationing problem, at least for Section 8 vouchers?**
 - < One may wonder why some households get a generous voucher, and others on the waiting list get nothing. Why not lower the voucher amount and give vouchers to more people?
 - < The FMR is not determined by the housing authority – HUD takes a survey of apartments.

Background and budget constraints

Institutional background

- **Determining the income limits and FMRs**
 - < Both are determined at the county-level, even though the real “market” is probably much smaller.
 - < Income limit for family of four is 50% of median household income – in counties with smaller families (e.g., retirement communities), limit is likely lower.
 - < The FMR is determined by a survey of local rents for one and two bedroom apartments. Either the 40th or 45th percentile of rents is taken as the FMR, depending on the time period.

Background and budget constraints

Institutional background

■ **Rental payments**

- < From 1981-1998, the Brooke amendment stipulated that a household pays either 30% of adjusted income, 10% of gross income, or in some states its welfare shelter payment.
 - Adjusted income had a standard deduction, a deduction for number of dependents, child care, and an additional deduction for disabled/elderly (defined as 62+).
 - For most states, welfare shelter payment is not applicable.
- < Recently, project households can choose flat rent or the schedule implied by the Brooke amendment.

Background and budget constraints

Institutional background

- **Generosity of voucher or project**
 - < HUD guidelines suggest that children of the same sex may share a bedroom
 - < No more than 2 persons are required to occupy a bedroom
 - < Unrelated adults and persons of the opposite sex (other than spouses) are not required to share a bedroom
- *Implication is that families with an even number of children but odd number of boys and girls get extra bedroom compared to families with an even number of boys and girls*

Background and budget constraints

Institutional background

- **Valuing projects, vouchers, and extra bedrooms**
 - < Follow previous work and value the subsidy at the FMR value.
 - < Estimates from previous studies suggest that projects are valued at 75% of costs (Olsen, 2000). Will try this in future.
 - < Valuing an extra bedroom is clearly more difficult, but one can think of a household “cashing-out” the subsidy by subletting the bedroom. May not comply with rules, but enforcement is dubious.

Background and budget constraints

Implications of rules for housing

- **Illustration of the effects of HUD rules**
 - < Very-low income limit varies considerably, and goes higher than most other welfare programs. Usually ends in the EITC phaseout range.
 - < More than 80% of counties had income limit greater than poverty line.
- Table 1 maps out budget constraint for family in Philadelphia, Pennsylvania for 1996.

Table 1: Earnings and benefits for a mother with 2 kids, 1996, Philadelphia.

Earnings	EITC	AFDC	Food Stamps	Medicaid \$3307	Housing subsidy, 2 bedrooms	Total Income
0	0	5052	2722	Yes	8136	19217
5000	2000	2492	2590	Yes	7224	20730
10000	3556	0	2438	No	6024	18253
15000	2842	0	1538	No	4824	18436
20000	1789	0	0	No	3624	18123
22000	1368	0	0	No	3084	18493
23000	1157	0	0	No	0	15901
25000	736	0	0	No	0	16929
30000	0	0	0	No	0	19837

Also included: social security taxes, federal & state income taxes, and work expenses.

Background and budget constraints

Implications of rules for housing

- Table 2 shows the FMRs, income limits, and notches for seven metropolitan areas.
- Five of these areas (Baltimore, Boston, Chicago, Los Angeles, and New York) are the sites of the MTO program.

Table 2: Very-low income limits, fair market rents, and public housing notches for several metropolitan areas, 1996

	VL for head with 2 kids	2 bedroom apartment (2 boys or 2 girls)		3 bedroom apartment (1 boy and 1 girl)	
		FMR	Notch	FMR	Notch
Baltimore	\$23600	7188	1656	9504	3972
Boston	25400	9696	3624	12120	6048
Chicago	24350	8448	2691	10572	4815
LA	23100	10260	4878	13848	8446
NY	22050	9804	4737	12264	7197
Phil. (Table 1)	22200	8136	3024	10176	5064
SF	27600	11400	4668	15624	8892

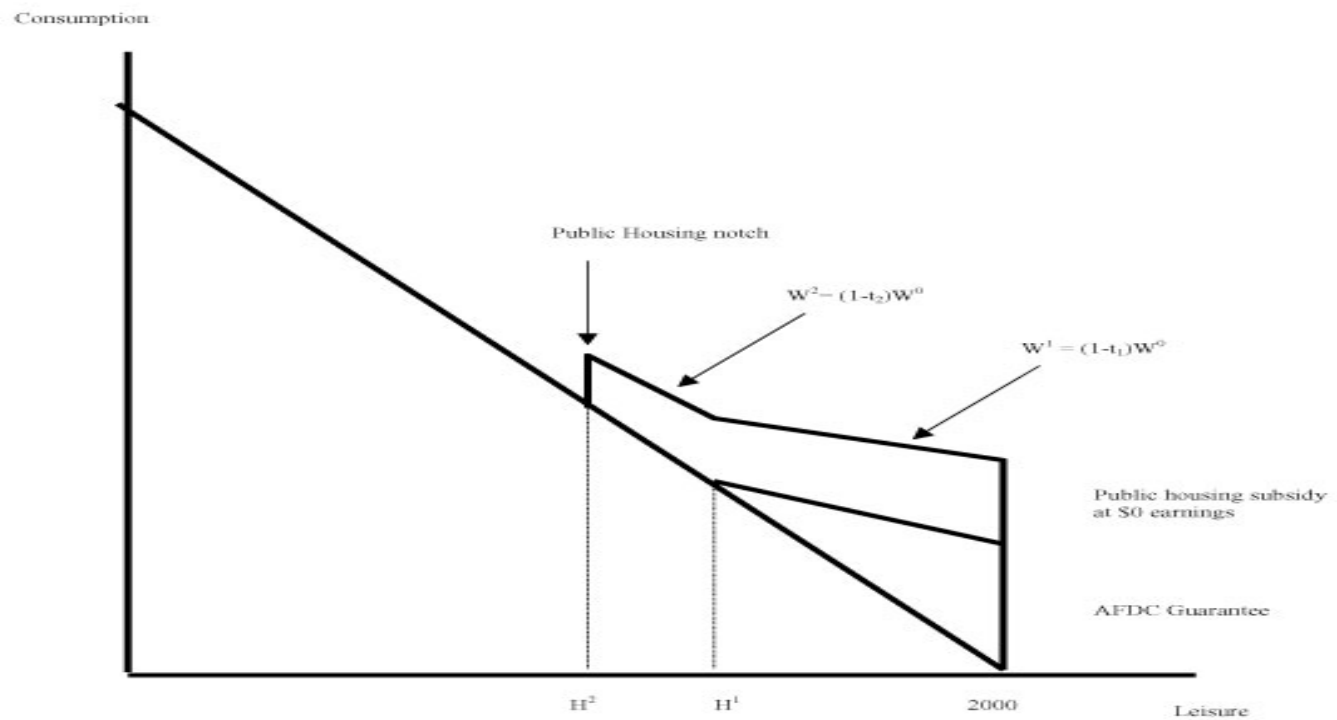
Note: Assumes \$4200 in annual child care expenses and \$960 in deductions.

Background and budget constraints

Predictions for labor supply

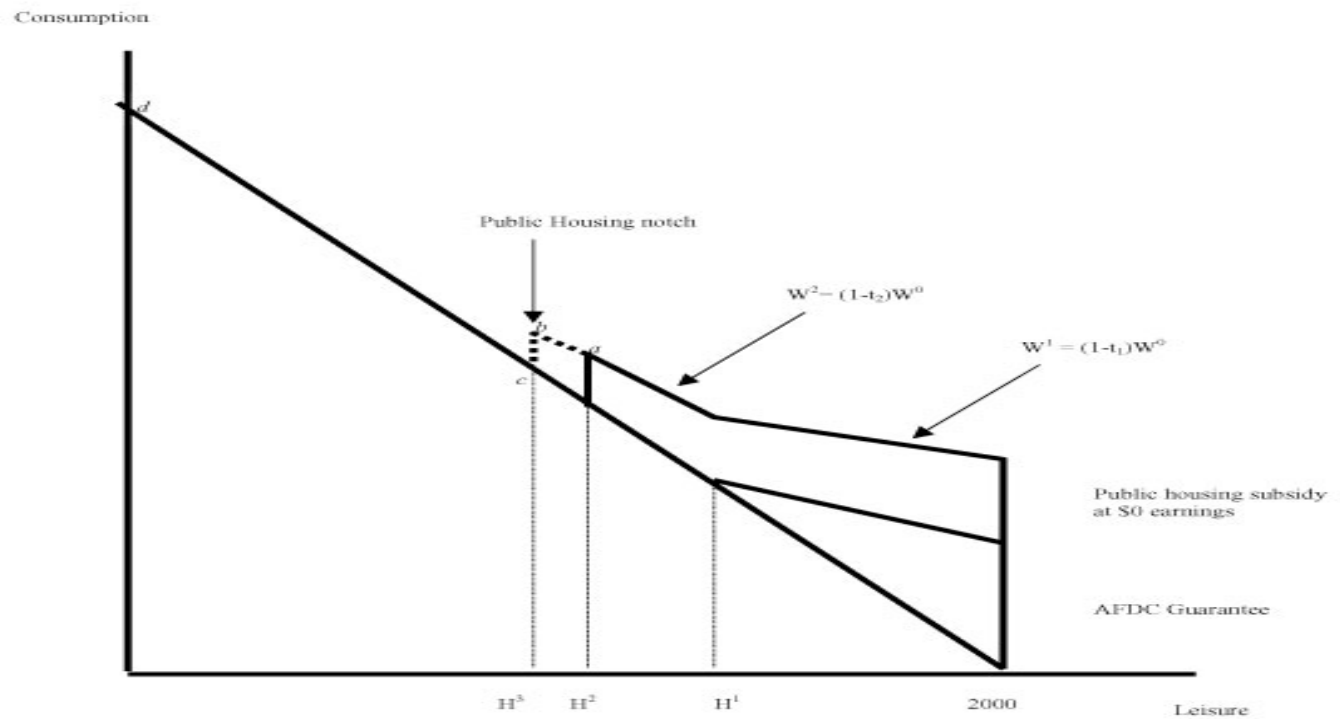
- Figures 1, 2, and 3 show the budget constraints when public housing is included.
 - < Figure 1 shows the notch from public housing, as well as the general case of AFDC eligibility ending before public housing eligibility.
 - < Figure 2 shows the effects of increasing the income limit.
 - < Figure 3 shows the effects of increasing the FMR. Generally, the effect of increasing the FMR should be to reduce LFP.

Figure 1
Budget constraint with public housing



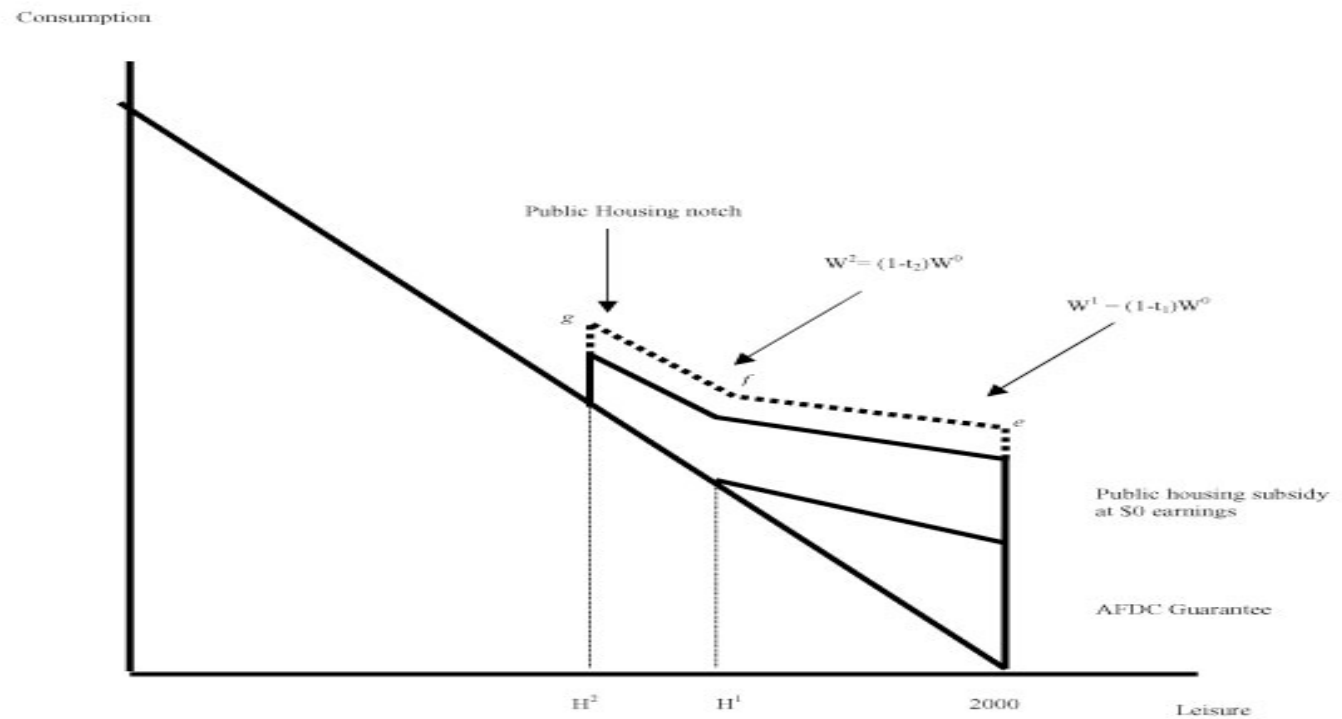
The public housing is taxed away at 30%, until earnings of $W^0 H^2$, at which the remaining subsidy is taken away.

Figure 2
Increasing the "very-low" income limit



The notch point is now at H^3 . The notch becomes smaller if the FMR is held constant and the income limit increases.

Figure 3
Increasing the FMR



The notch gets bigger when the FMR increases while the income limit is held constant.

Outline of Talk

- **III. Methods and data**

Methods and Data

Methods

- Reduced form results, regress labor market outcomes on public housing rules (FMR and VL income limit)
- Second specification measures drop in public housing benefits for earning more than the VL income limit. This variable is called NOTCH

Methods and Data

Methods

- Illustrate NOTCH by returning to Table 2
- Consider the family with 2 boys in Baltimore in 1996 at the income limit
 - < VL limit is \$23,600
 - < FMR is \$7,188 at zero earnings
 - < Exemptions for 2 kids equals \$960
 - < Childcare expenses are \$4,200
 - < NOTCH = FMR - TENANT PAYMENT at the VL limit
 - < $\$1,656 = \$7,188 - 0.3 \times (23,600 - 960 - 4,200)$

Table 2: Very-low income limits, fair market rents, and public housing notches for several metropolitan areas, 1996

	VL for head with 2 kids	2 bedroom apartment (2 boys or 2 girls)		3 bedroom apartment (1 boy and 1 girl)	
		FMR	Notch	FMR	Notch
Baltimore	\$23600	7188	1656	9504	3972

Note: Assumes \$4200 in annual child care expenses and \$960 in deductions.

Methods and Data

SIPP Data

- Use 1990-1993 panels of the Survey and Income Program Participation (SIPP)
 - < Each panel follows individuals for 32-36 months
 - < Extracts in this study use all available months, and include individual fixed or random effects
 - < Female heads aged 18-61 with 1-3 kids and 2-5 family members
 - < Appendix Table 1 goes through the precise screens.

Appendix Table 1: Sample screens for SIPP

	1990 Panel	1991 Panel	1992 Panel	1993 Panel
Original sample (all persons, waves, months)	1,769,133	1,133,515	1,748,849	1,750,970
HMSA > 0	1,121,821	662,041	1,056,316	1,061,325
FKIND = 3	273,687	147,880	248,839	242,753
FNKIDS > 0	141,695	72,715	126,867	124,208
Ref. person aged 18-61 and unmarried	121,631	61,770	104,183	106,571
RRP = 1	37,134	18,701	31,895	32,313
Merged FMR and income limit	35,096	18,596	31,697	32,158
DISAB ... 1	30,999	16,360	27,537	28,207
1-3 kids and 2-5 family size	28,270	14,643	24,740	25,564
Variables consistent	22,485	11,694	19,687	20,517
<i>Unique individuals</i>	1,309	679	1,018	1,047

There are 4,053 households (74,383 observations) in the sample for the calendar years 1990-1995.

Methods and Data

CPS Data

- Also use 1991-1996 March Current Population Survey (CPS), covering years 1990-1995.
 - < Similar screens as in the SIPP
 - < CPS has somewhat broader geographic coverage
 - < Larger sample size, but not panel data
 - < Appendix Table 2 goes through the precise screens.

Appendix Table 2 : Sample screens for CPS

	3/1991	3/1992	3/1993	3/1994	3/1995	3/1996
Original sample	158,477	155,796	155,197	150,943	149,642	130,476
HG_MSAC>0	109,102	107,659	106,516	104,068	101,701	95,444
FKIND=3	25,138	25,452	24,998	24,933	23,985	22,637
FRELU18>0	12,583	13,024	12,882	12,990	12,534	11,778
Ref. person aged 18-61 and unmarried	9,655	10,004	9,905	9,949	9,647	9,132
A_EXPRRP=1	3,213	3,318	3,331	3,313	3,194	3,058
Merged FMR and income limit	3,204	3,312	3,328	3,307	3,103	3,051
DIS_HP...1	2,939	3,045	3,030	2,999	2,842	2,766
1-3 kids and 2-5 family size	2,599	2,659	2,640	2,608	2,506	2,431

There are 15,443 households in the sample for the calendar years 1990-1995.

Outline of Talk

- **IV. Results from CPS, SIPP, and HUD data**

Results from CPS, SIPP, and HUD data

Rationing results from HUD data

- Before examining labor market outcomes, some key questions regarding **rationing**
 - < Is getting a 3 bedroom apartment a benefit or cost? Does it take longer to get larger apartments? Are larger apartments equally available.
 - **Nationally, %2 bedroom about the same as %3 bedroom.**
 - < Are larger apartments located in worse neighborhoods to make up for extra costs?
 - < Do housing authorities apply more stringent standards to households that are entitled to an extra bedroom?

Results from CPS, SIPP, and HUD data

Rationing results from HUD data

- Examine HUD data called “Picture of Subsidized Households” for 1996.
- Unit of observation is a project development. No good data to examine vouchers.
- Regress measures of availability and neighborhood quality on fraction of 0-bedroom, 1-bedroom, 2-bedroom, and 3-bedroom units
- **No significant differences between 2 and 3 bedroom units.**

Table 3: Are 2- and 3-bedroom project apartments equally available?

	(1) Average stay (years)	(2) Average wait time (months)	(3) Movers into development	(4) % in tract in poverty
% 1 bed	.007 (.002)	.001 (.016)	-.087 (.020)	-.002 (.014)
% 2 bed	.042 (.003)	.075 (.027)	-.129 (.028)	-.055 (.020)
% 3 bed	.044 (.004)	.077 (.031)	-.138 (.031)	-.037 (.022)
P-val on 1 bed=2 bed	0.000	0.005	0.107	0.003
P-val on 3 bed=2 bed	0.587	0.931	0.685	0.225
Mean [range]	5.97 years [0,25]	9.99 months [1,99]	17.33% [0,98]	29.56% [1,93]

Notes: Also includes MSA fixed effects, age-distribution, income distribution, race distribution, and family structure distribution.

Results from CPS, SIPP, and HUD data

SIPP and CPS comparisons

- Table 4 illustrates variable means for SIPP and CPS, for entire sample and for those in and out of public housing
- SIPP and CPS means for entire sample look very similar
 - < Demographics very similar
 - < 19% participate in public housing; 27% in AFDC
 - < Nearly two-thirds eligible for public housing
 - < FMR is \$700 per month, SD of \$180
 - < Notch about \$300, SD of \$150

Table 4 : Means for full sample

	SIPP	CPS
Part. in PH (annual)	19 %	19 %
LFP	77 %	75 %
A F D C part.	27 %	28 %
Below income threshold	65 %	63 %
Full time work [36+]	63 %	56 %
Part time work [1,35]	25 %	19 %
PH take-up rate	29 %	28 %
FMR (monthly)	\$708 (\$179)	\$695 (\$185)
VL income limit (monthly)	\$1460 (\$255)	\$1692 (\$314)
Notch (monthly)	\$265 (\$149)	\$342 (\$152)
Age	36.3	35.1
Nonwhite	56 %	56 %
Never Married	31 %	34 %
High schooldropout	21 %	21 %
Number of boys	.85	.83
Number of kids	1.65	1.65
Family size	2.95	2.87

Results from CPS, SIPP, and HUD data

SIPP comparisons

- Next part of Table 4 shows that those with housing subsidies are very different on observable dimensions than those without subsidies.
- Those in public housing less advantaged.
 - < Interesting to note that LFP still fairly high (37%) for those in public housing
 - < Part-time work is actually higher for those in public housing.

Table 4 – continued– Monthly SIPP Means

	(2) In Pub. Housing	(3) Not in PH
LFP	37%	76%
AFDC part.	61%	16%
Below income threshold	89%	45%
Full time work [36+]	22%	61%
Part time work [1,35]	17%	16%
Age	33.1	37.0
Nonwhite	83%	50%
Never Married	54%	26%
High schooldropout	34%	18%
Family size	3.01	2.93

Results from CPS, SIPP, and HUD data

Reduced form results on FMRs

- Table 5 controls for all the “main effects” as well as some interactions.
- Consistent, negative effects of FMR in CPS cross section and SIPP panel
 - < Consider the SIPP individual fixed effects estimator: a one-standard deviation increase in FMR (\$180) leads to a 4 percentage point reduction in LFP from baseline of 70%
 - < That is, $-.222 \times .180$.
- Income limit has smaller, insignificant effects.

Table 5: Labor Supply Results using the FMR and Income Limit

	CPS		SIPP Ran dome effects		SIPP Fixed effects	
	(1)	(2)	(3)	(4)	(5)	(6)
	LFP	AFDC	LFP	AFDC	LFP	AFDC
Fair Market Rent	-.199 (.087)	.006 (.087)	-.233 (.036)	.079 (.024)	-.222 (.036)	.074 (.025)
Very-Low Income Limit	.003 (.062)	-.005 (.062)	-.029 (.036)	-.072 (.025)	-.020 (.037)	-.080 (.025)
Mean of dep. var.	0.746	0.279	0.696	0.238	0.696	0.238

Notes: Fixed effects for MSA, YEAR, BOYS, KIDS, FSIZE, BOYS*KIDS, BOYS*YEAR, KIDS*YEAR, FSIZE*YEAR, BOYS*KIDS*FSIZE, BOYS*KIDS*YEAR, reference month (in the SIPP), and a constant term. Figures are in 1995 dollars, expressed on a monthly basis, and divided by 1,000.

Results from CPS, SIPP, and HUD data

Results on NOTCH

- Table 6 parameterizes the NOTCH, constructed from the very-low income limit
- Strong negative effects on LFP and positive effects on AFDC participation in both data sets.

Table 6: Labor Supply Results using the public housing notch

	CPS		SIPP Randomeffects		SIPP Fixed effects	
	(1)	(2)	(3)	(4)	(5)	(6)
	LFP	AFDC	LFP	AFDC	LFP	AFDC
Notch (constructed from the VL)	-.415 (.076)	.157 (.076)	-.292 (.033)	.145 (.023)	-.256 (.034)	.125 (.023)

Notes: The sample sizes and covariates are the same as Table 5, except that indicator variables for any kids under age 6 and under age 13 are also included.

Results from CPS, SIPP, and HUD data

Results on NOTCH using instrumental variables

- Table 6 makes some tenuous assumptions in forming NOTCH, however.
- Project households may not ever get kicked out – they simply pay above-market rents when their income goes up. Voucher households – more likely that low income limit holds. For non-subsidized households, very-low income limit should hold, however.

Results from CPS, SIPP, and HUD data

Results on NOTCH using instrumental variables

- In principle, then, assign notch of zero to project households, notch evaluated at low income limit for voucher households, and notch evaluated at very-low income limit for unsubsidized households.
 - < This creates a problem, however, because households who receive subsidies are less advantaged on observable (and presumably unobservable) dimensions.
 - < And subsidized households get smaller NOTCH.
 - < Would lead to counterintuitive results for NOTCH.

Results from CPS, SIPP, and HUD data

Results on NOTCH using instrumental variables

- Solution: create instrument (*INSTNOTCH*) that does not rely on individual's housing choice.
- MSA weighted average of notch from projects, vouchers, and unsubsidized housing.
 - < Weights from HUD administrative data.
 - < Weights used for **all households**, not just female heads. This is a data constraint.
- First stage fit is excellent.

Results from CPS, SIPP, and HUD data

Results on NOTCH using instrumental variables

- Table 7 shows that IV results are similar to the conclusions made in Table 6.
- And Table 7's results incorporate the fact that it is easier to stay in public housing than to get in public housing.

Table 7: IV results

	CPS		SIPP Random effects		SIPP Fixed effects	
	(1)	(2)	(3)	(4)	(5)	(6)
	LFP	AFDC	LFP	AFDC	LFP	AFDC
Notch (using actual housing status)	-.501 (.101)	.185 (.099)	-.346 (.040)	.170 (.028)	-.300 (.041)	.146 (.028)

Notes: The sample sizes and covariates are the same as Table 5, except that indicator variables for any kids under age 6 and under age 13 are also included.

Results from CPS, SIPP, and HUD data

Other outcomes

- Table 8 examines full and part time work, as well as whether households bring their total income under the “very-low” limit.
- Focus on SIPP results here.
- FMR has bigger negative effect on full, rather than part-time work.
- I prefer not to put too much stock in the results for the very-low limit on being below the threshold – mechanical relationship.

Table 8 : Additional labor market outcomes

	SIPP Random effects			SIPP Fixed effects		
	(4) Below thresh old	(5) Full time work	(6) Part time work	(7) Below thresh old	(8) Full time work	(9) Part time work
<i>1. Results in the fair market rent and very-low income limit</i>						
FMR	.052 (.042)	-.203 (.039)	-.109 (.038)	.048 (.043)	-.202 (.040)	-.100 (.039)
VL	.173 (.042)	.030 (.039)	-.072 (.038)	.159 (.044)	.038 (.040)	-.074 (.039)
<i>2. Results using the public housing notch</i>						
Notch (constructed from very-low income limit)	.230 (.039)	-.209 (.037)	-.135 (.035)	.181 (.041)	-.178 (.037)	-.132 (.037)
<i>3. Instrumental variables estimates using the public housing notch</i>						
Notch (using actual housing status)	.277 (.047)	-.247 (.044)	-.161 (.043)	.217 (.049)	-.208 (.045)	-.157 (.044)

Results from CPS, SIPP, and HUD data

Other outcomes

- I consider the NOTCH results informative for income below the threshold.
- Table 8 suggests that bigger notches are associated with more households having total income under the very-low threshold.

Table 8: Additional labor market outcomes

	SIPP Ran dome effects			SIPP Fixed effects		
	(4) Below thresh old	(5) Full time work	(6) Part time work	(7) Below thresh old	(8) Full time work	(9) Part time work
<i>2. Results using the public housing notch</i>						
Notch (constructed from very-low income limit)	.230 (.039)	-.209 (.037)	-.135 (.035)	.181 (.041)	-.178 (.037)	-.132 (.037)
<i>3. Instrumental variables estimates using the public housing notch</i>						
Notch (using actual housing status)	.277 (.047)	-.247 (.044)	-.161 (.043)	.217 (.049)	-.208 (.045)	-.157 (.044)

Results from CPS, SIPP, and HUD data

Specification checks

- Table 9 goes through some specification checks.
- Concern about variation in FMR and very-low income limit being driven by women who had babies. Would lead to higher FMRs and lower LFP, for instance.
 - < Panel 1 excludes these women; results largely unchanged for LFP, but AFDC results in SIPP now insignificant.

Table 9 : Specification checks

	CPS		SIPP		SIPP	
			Random effects		Fixed effects	
	(1)	(2)	(3)	(4)	(5)	(6)
	LFP	AFDC	LFP	AFDC	LFP	AFDC
<i>1. Exclude women who had baby at any time during CPS year/SIPP panel</i>						
Fair Market Rent	-.166 (.089)	.013 (.089)	-.202 (.039)	.006 (.025)	-.196 (.040)	.002 (.026)
Very-Low Income Limit	.001 (.063)	.011 (.063)	-.008 (.040)	-.039 (.026)	-.001 (.040)	-.040 (.026)
<i>2. Exclude female heads who were not in the SIPP for entire panel</i>						
Fair Market Rent	n/a	n/a	-.335 (.047)	.138 (.032)	-.322 (.047)	.136 (.032)
Very-Low Income Limit	n/a	n/a	.040 (.055)	-.110 (.037)	.031 (.055)	-.112 (.037)
Notes: In the first panel of this table, there are 14,435 households in each CPS regression, and 60,494 observations (3,315 female head of households) in each SIPP regression. In the second panel, there are 26,836 observations on 776 female heads in the SIPP.						

Results from CPS, SIPP, and HUD data

Specification checks

- Also a concern about attrition in the SIPP.
 - < Likely that some women exit female headship by getting married.
 - < The women who exit are probably less likely to use the welfare system.
 - < Panel 2 of Table 9 confirms this. Results somewhat stronger than in Table 5.

Table 9: Specification checks

	SIPP Ran dome effects		SIPP Fixed effects	
	(3) LFP	(4) AFDC	(5) LFP	(6) AFDC
<i>2. Exclude female heads who were not in the SIPP for entire panel</i>				
Fair Market Rent	-.335 (.047)	.138 (.032)	-.322 (.047)	.136 (.032)
Very-Low Income Limit	.040 (.055)	-.110 (.037)	.031 (.055)	-.112 (.037)

Notes: In the second panel, there are 26,836 observations on 776 female heads in the SIPP.

Outline of Talk

- **V. Conclusions and future directions**

Conclusions and future directions

Conclusions

- Using 2 different data sets, this study has found consistent evidence of labor supply distortions from public housing rules
- Used “natural experiment” resulting from sex composition – allows specifications to include MSA fixed effects, for example
- Changing the budget constraint could result in “desirable” behavior like work – should weigh the costs of this versus other policies like switching neighborhoods. This second policy is the aim of MTO, and is being extensively studied.

Conclusions and future directions

Future directions

- Evaluate 1998 legislative changes, eventually
 - < More discretion on part of housing authorities after 1998 – do they cream skim?
- Landlord behavior with respect to program regulations
 - < Vouchers are popular, but evidence indicates access issues.
- MTO has examined effects of neighborhoods on voucher recipients – no one has looked at the reverse question.