

# Housing Policies

## Housing

Hussain Hadah (he/him)

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Tulane  
University

# Outline for Today

1. **Cover chapter 7**
2. **Introduce Housing Policies**
3. **Economics Models and Housing Policies**





# Next week

## Readings

- There are many readings on housing, check them on Canvas

# Chapter 7: Housing Policies



# Housing Policies

We will examine a few housing policies that are commonly used to address housing issues.

1. Housing subsidies
2. Rent control
3. Homelessness

# Housing Subsidies



# What are Housing Subsidies?

**Housing subsidies** are financial assistance provided by the government to subsidize housing consumption

**Housing subsidies** can be targeted to low-income households or to the general population

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## What are the goals of housing subsidies?

1. Increase standard of living for low-income families
2. Provide incentives to improve housing, particularly in low-income areas



# Types of Housing Subsidies

1. **Proportion rent subsidy (PRS)**: The government pays a fraction of the rent bill. This fraction is  $\beta$ . So, the household pays  $(1 - \beta) \times \text{rent}$ . E.g.,  $\beta = 0.3$  means the household pays 70% of the rent.
2. **Income Grant (IG)**: The government gives households a lump sum of money. This lump sum does not depend on housing consumption. This is simply an income boost (increase in  $y$ )
3. **Housing Vouchers (HV)**: The government gives households a voucher that can be used to pay for housing
4. **Public Housing (PH)**: Families rent housing units for the government. The housing units are typically priced below market rent and are often higher quality

# How do Housing Subsidies Affect the Market?



# Let's consider a simple model of rent subsidies

- The government pays a fraction of the rent bill
- This fraction is  $\beta$ , and  $0 \leq \beta \leq 1$
- So, the household pays  $(1 - \beta) \times \text{rent}$ . E.g.,  $\beta = 0.3$  means the household pays 70% of the rent
- Families choose between housing ( $q$ ) and consumption/"bread" ( $C$ )
- The price of housing is  $p$
- The price of bread is 1
- Since the government pays a fraction of the rent, the effective price of housing is  $p(1 - \beta)$

# The Budget Constraint

- Households cannot spend more than their income, so there is a budget constraint
- Let the household spend all of their disposable income on housing and bread, so  
total expenditure = disposable income
- Price of bread x quantity of bread + price of housing x quantity of housing = disposable income ( $y$ )
- $c + pq = y$
- We can use this to derive plot the budget
- The x-axis is the quantity of bread, and the y-axis is the quantity of housing

# The Budget Constraint

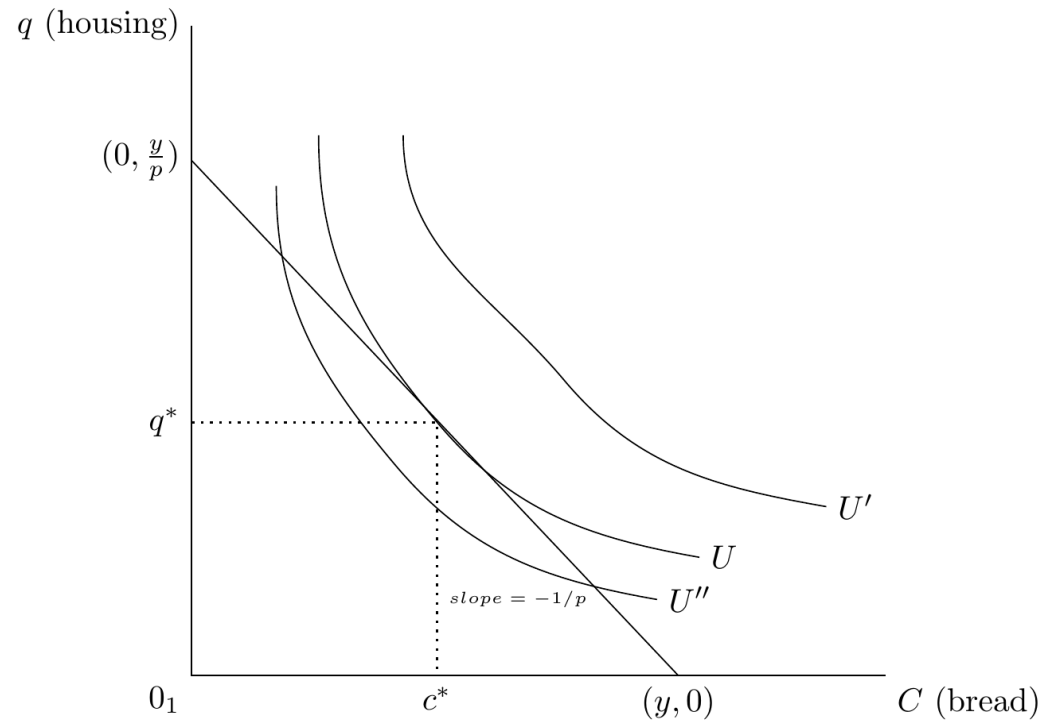
$$c + pq = y$$

- Rearrange and solve for quantity of housing ( $q$ )

$$pq = y - c$$
$$q = \frac{y - c}{p} = \frac{y}{p} - \frac{c}{p}$$

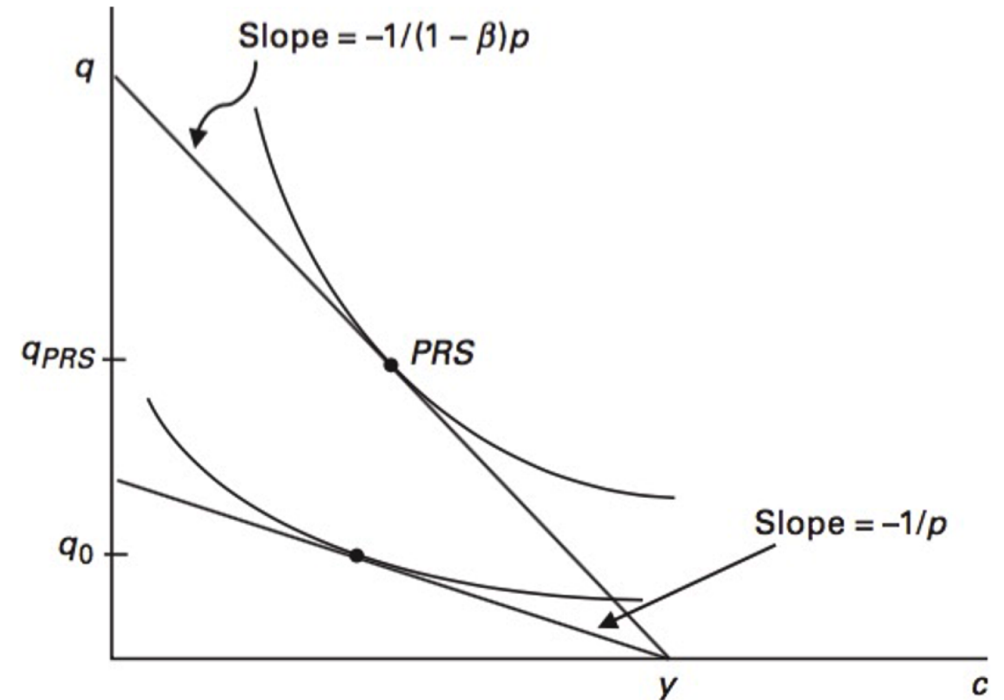
# Plotting the Budget Line

- To plot the budget constraint, we need to find two points
- When  $q = 0$ , plug into the budget constraint and solve for  $c$ , we get  $(0, \frac{y}{p})$
- When  $c = 0$ , plug into the budget constraint and solve for  $q$ , we get  $(y, 0)$
- The optimal choice of  $c$  and  $q$  for a given income  $y$ , and the price of rent  $p$  is where the budget line is tangent to the indifference curve ( $U$ )
- Let us call this point  $(c^*, q^*)$



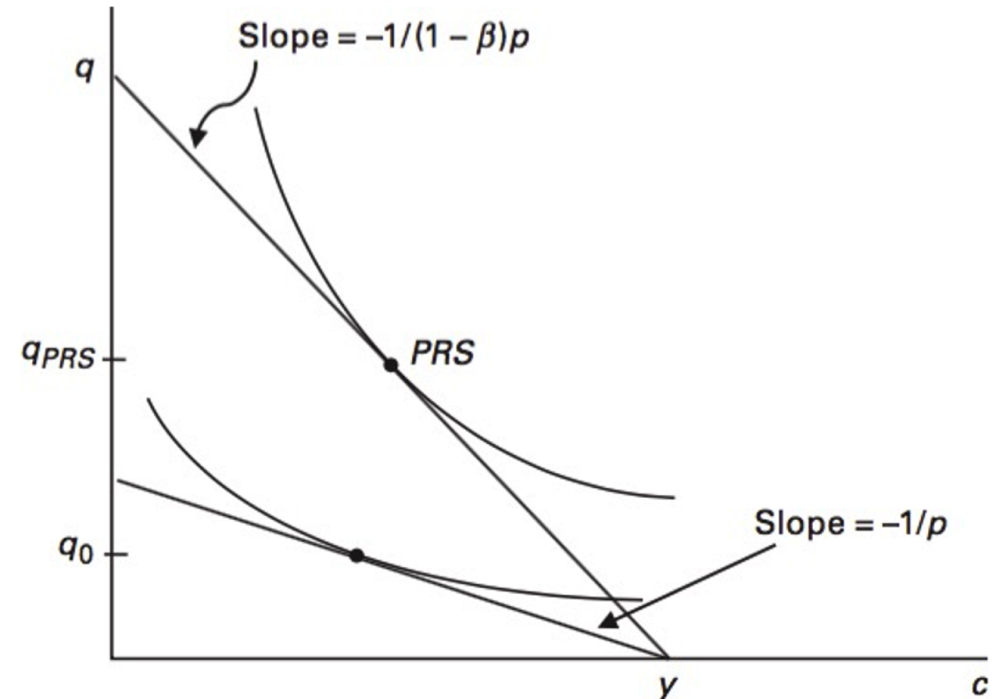
# What happens when the government pays a fraction of the rent?

- If the government introduced a proportional rent subsidy (PRS), the price of housing decreases from  $p$  to  $p(1 - \beta)$
- The budget constraint rotates outwards
- The x-axis stays the same
- The y-axis increases from  $\frac{y}{p}$  to  $\frac{y}{p(1-\beta)}$



# What happens when the government pays a fraction of the rent?

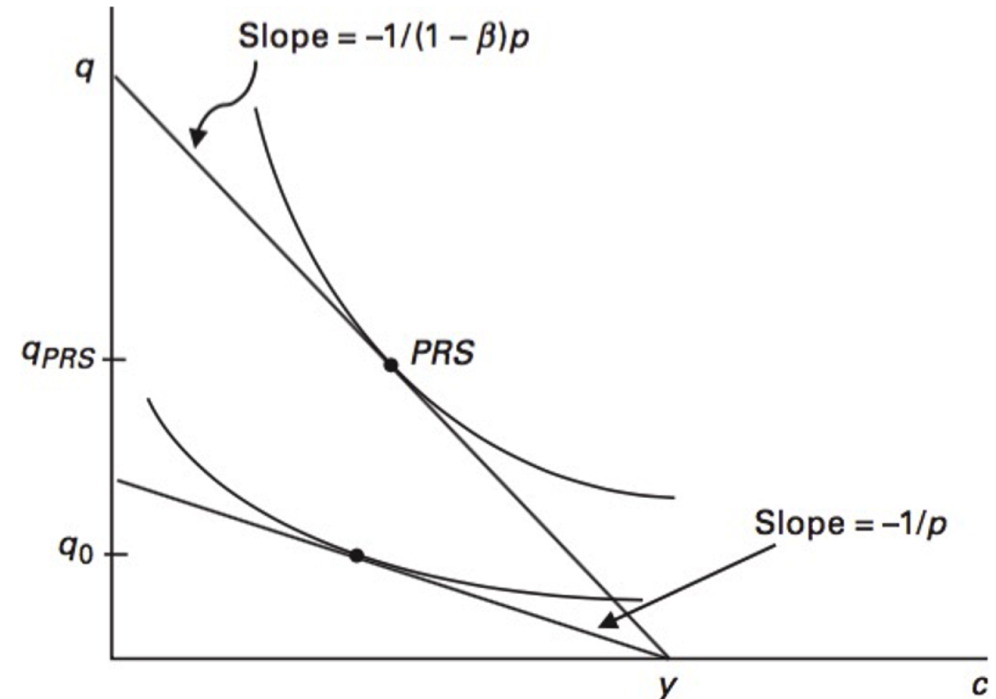
- Both quantities of housing and bread increase, but the quantity of housing increases more than the quantity of bread
- Why?
  - Substitution effect: housing is cheaper, so households consume more housing and less bread
  - Income effect: households have more disposable income, so they consume more of both goods





# What happens when the government pays a fraction of the rent?

- Substitution effect: housing is cheaper, so households consume more housing and less bread
- Income effect: households have more disposable income, so they consume more of both goods
- The substitution effect decreases  $c$ , while the income effect increases  $c$ . Which effect dominates? It depends on which effect, income or substitution, is larger. In the figure, the income effect is slightly larger, showing a slight net increase in  $c$ .

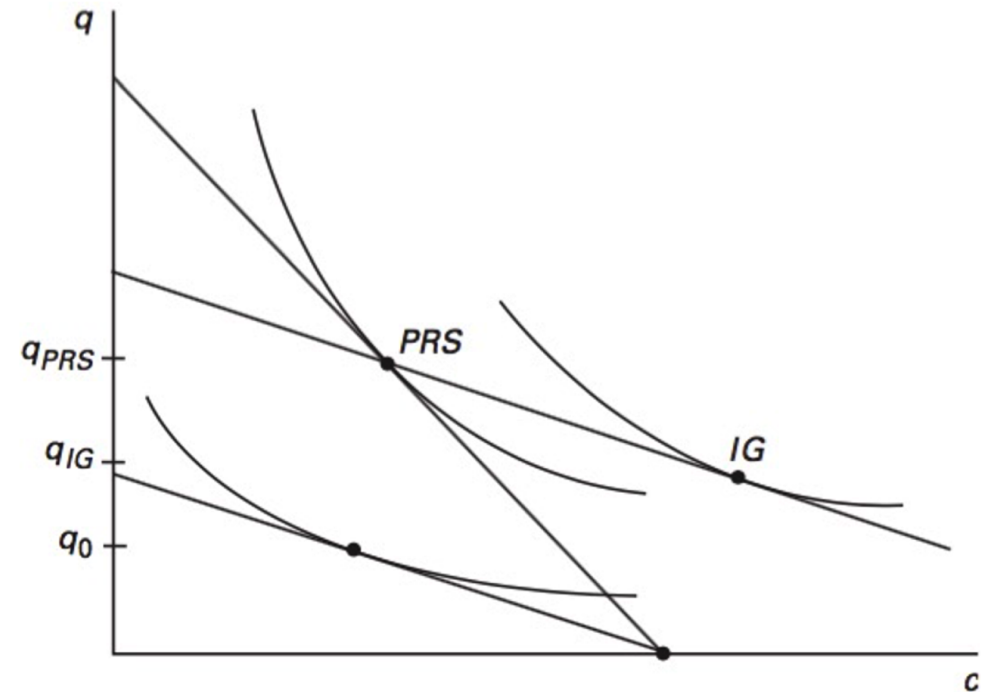


# What happens when the government introduces Income Grants (IG)?

- An income grant is a lump sum of money given to households
- This is not tied to housing consumption
- It acts as an income boost (increase in  $y$ ) from  $y$  to  $y + G$
- Suppose the government gives a grant of  $G$  that is the same as the PRS
- Under PRS, government pays  $\beta \times p \times q_{PRS}$
- Under IG, government pays  $G$ , so  $G = \beta \times p \times q_{PRS}$

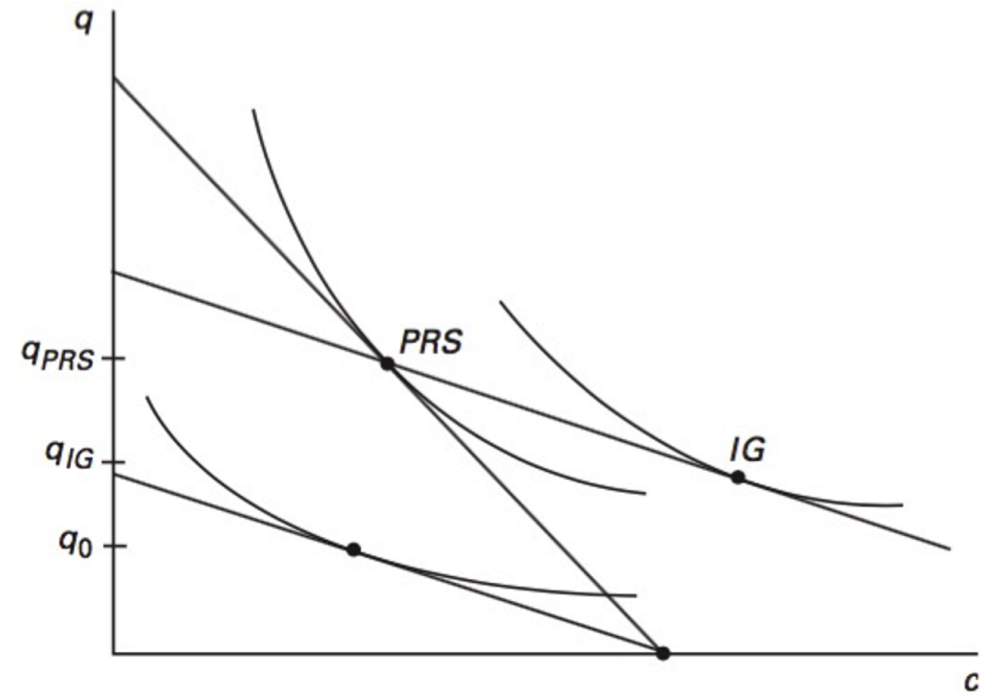
# PRS vs. IG

- The budget constraint rotates outwards under both PRS and IG
  - Under PRS, the budget constraint rotates outwards and price drops from  $p$  to  $p(1 - \beta)$
  - Under IG, the budget constraint shift out parallel to the original budget constraint
- Both the PRS and IG budget lines go through the same point PRS---since  $G = \beta \times p \times q_{PRS}$  and  $PRS = \beta \times p \times q$



# PRS vs. IG

- Utility is higher under IG than PRS
- IG comes with no strings attached, so households can spend the money on whatever they want
- PRS costs the government the same as IG, but it constrains households to spend the money on housing
- PRS benefits households through price reduction
- Under PRS, housing consumption is higher. This means that slum-reduction effect is greater because families demand better housing



# What happens when the government introduces Housing Vouchers (HV)?

- Housing vouchers are like cash grants that can only be used to pay for housing
- It is like a gift card that can only be used to pay rent
- The gift card is worth \$G
- HV is same as IG, except voucher has the constraint that  $c \leq y$ , because it can only be used to pay for housing

# HV vs. IG: Two Cases

1. Binding constraint: This constraint matters because under the IG, where income is  $y + G$ , consumption of  $c$  is between  $y$  and  $y + G$
2. Non-binding constraint: This constraint does not matter because under the IG, where household income is  $y + G$ , consumption of  $c$  is between  $y$  and  $y + G$

# HV vs. IG: Two Cases

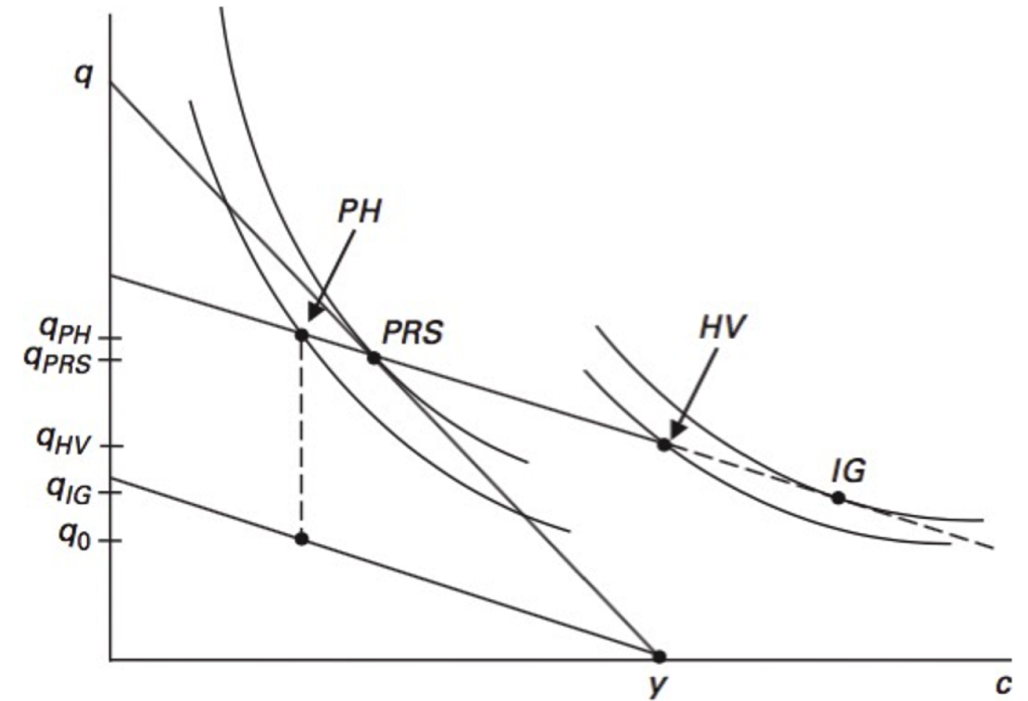
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## Which scenario occurs?

- Depends on the shape of the indifference curve and income elasticity

# Binding Case: HV vs. IG

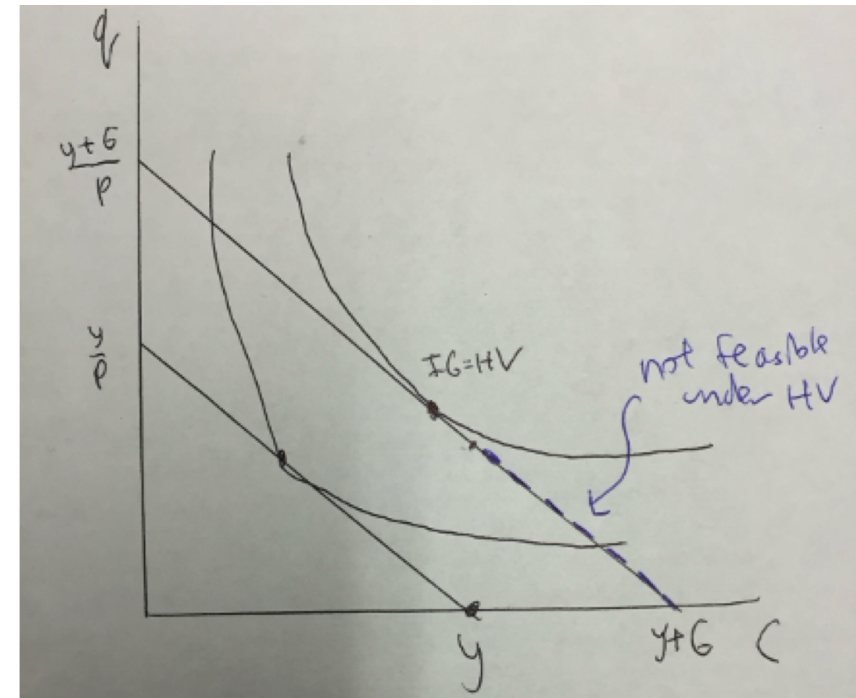
- The budget constraint shifts outwards under both HV and IG
- Under binding case, the household would like to consume more bread, but the voucher can only be used for housing
- The constraint  $c \leq y$  is binding, so the best they could do is set  $c = y$
- Utility is lower, but housing consumption is higher





# Non-Binding Case: HV vs. IG

- Household doesn't consume/spend more than  $y$  on bread even after IG increases income to  $y + G$
- The IG and HV programs lead to the same consumption of bread
- Note that since the households have different preferences, the budget constraint might bind for some and not other

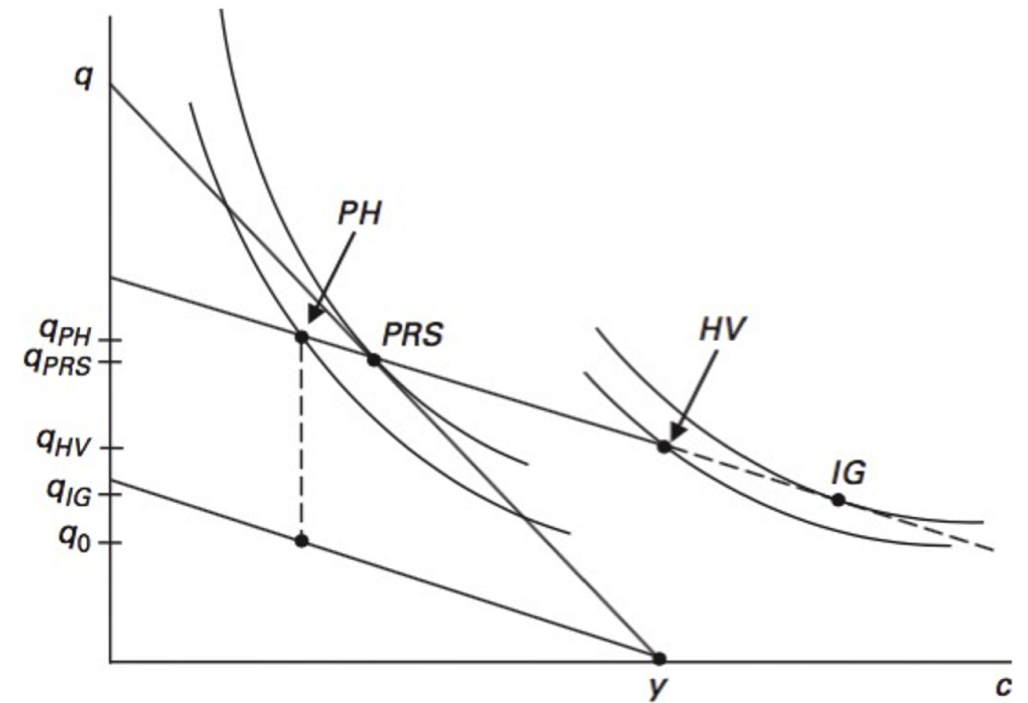


# Public Housing (PH)

- Families rent housing units for the government
- The government charges rent for these housing units at a rate below the market rent
- To allow an easier comparison between PH and PRS, IG, and HV, suppose that the household pays the same total rent bill in the original case (no programs) and under PH
- The government simply gives families a larger dwelling (higher  $q$ ) for the same price
- This leads to an increase in  $q$  but no change in  $c$
- To keep the expenditure on all programs the same, the government spends  $G$  to make the dwellings larger
- Assume the government can build housing at cost  $p$  per  $ft^2$  (the market price), the increase in  $q$  is the same budget line as with IG  $y + G$
- If government can only build housing at a higher cost than  $p$  (the government is inefficient) then the increase in  $q$  isn't quite as high

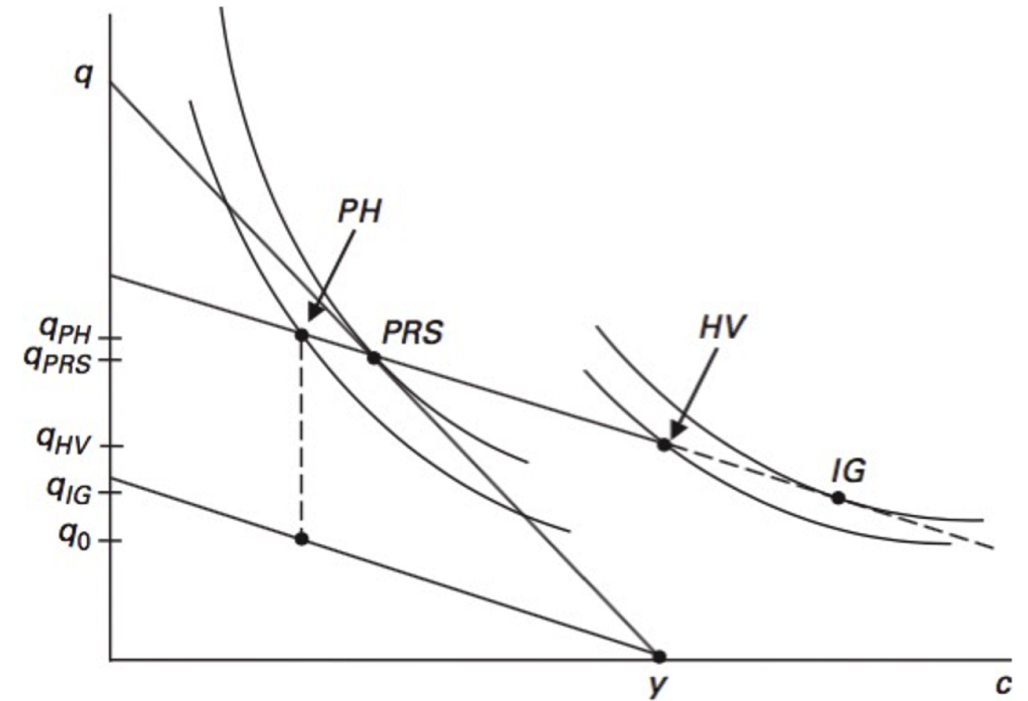
# Public Housing (PH): Figure

- The consumer's budget set is a bit weird in this case. Either they reject the public housing and consume on the original budget line (the low one), or they pick the point PH
- They will pick PH since the utility is much higher there
- Under PH,  $q$  increases from  $q_0$  to  $q_{PH}$
- No change in  $c$
- Families are essentially just given more  $q$



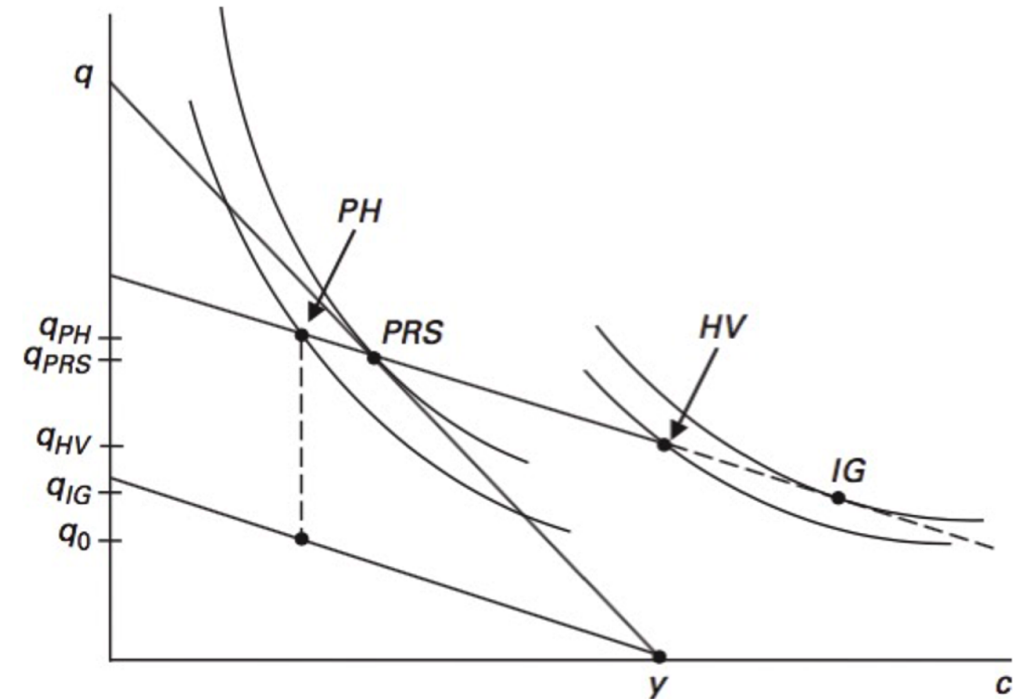
# Public Housing (PH): Figure

- Let's consider the budget constraint for IG (income is  $y + G$ )
- The budget constraint for IG goes through point PH
- PH lies on an indifference curve that is NOT tangent to this budget line
- Tangency actually occurs at IG
- If the household were given a grant  $G$  instead of getting  $\$G$  worth of housing, they would chose to increase both  $q$  and  $c$ , not just  $c$
- PH imposes the largest constraint on consumption choices



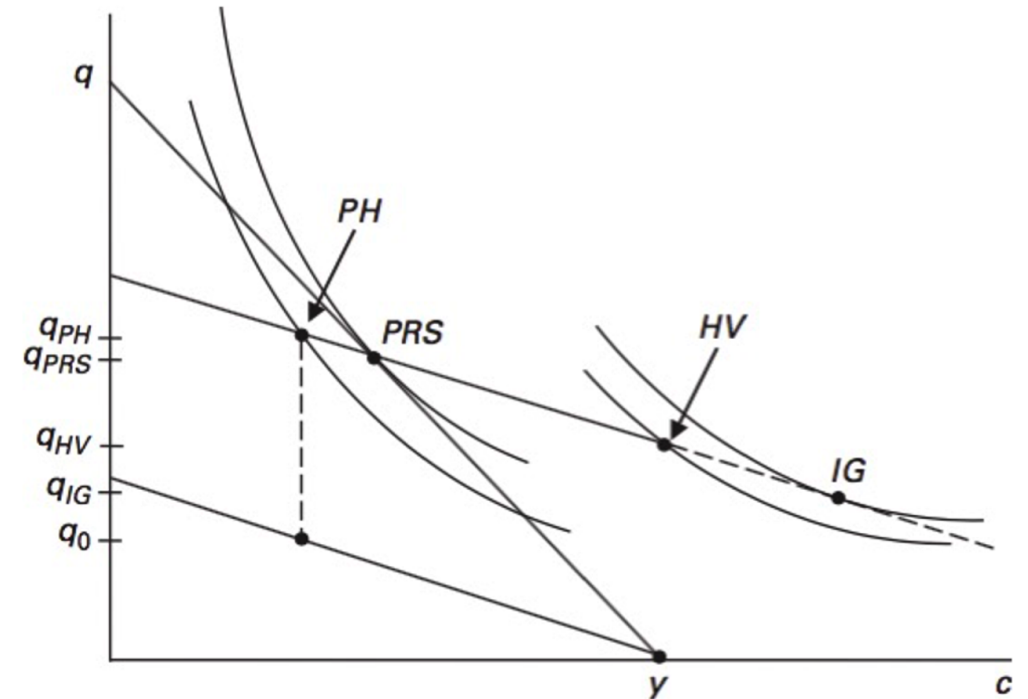
# PRS vs. HV vs. IG vs. PH

- IG has the highest utility because it places no restriction of consumer choice
- HV is next best. It is either the same as IG (non-binding case) or leads to less utility since  $c$  must equal  $y$
- PRS is third. A price decrease instead of a voucher is more restrictive, so utility is lower.
- PH has the smallest increase in utility. This is because the same amount of money (\$G\$) is spent to only increase housing. Relative to the other three policies, this is extremely restrictive to consumer choice



# PRS vs. HV vs. IG vs. PH: Slum Reduction

- IG poses no restrictions, so the increase in  $q$  is the lowest
- HV increases  $q$  a bit more than IG does in the binding case
- PRS increases  $q$  quite a bit more by making it cheaper through a subsidy
- PH increases  $q$  very directly, by building better housing. Avoids a market-based approach to increasing  $q$  as in the other three policies



# Public Housing in Practice



# Public housing is a popular policy

- Public housing leads to the largest increase in spending on housing  $q$
- Critics don't like PH because it concentrates poor people in one area, leading to neighborhoods with more crime and social issues
- More recent applications of PH focused on spreading out public housing units throughout the city
- Another application is having "mixed-income" housing, where some units are public housing and others are market rate
- See this [link](#) for more information on public housing in the US



# Low-Income Housing Tax Credit (LIHTC)

- While not exactly a PRS, the Low-Income Housing Tax Credit (LIHTC, pronounced “lie-tech”) has similar effects
- LIHTC was created under the Tax Reform Act of 1986
- LIHTC accounts for about 90% of all affordable rental housing created in the United States today
- LIHTC provides a subsidy for building developers when they build low-income housing. The subsidy is given on the condition that the developers build a certain number of units that are occupied by low income households at reduced rents
- This the LIHTC subsidizes housing developers who make low-income housing, rather than subsidizing the price of housing for low-income individuals
- [Source](#)

# Section 8 Housing Choice Voucher Program

- Refers to Section 8 of the Housing Act of 1937 (42 U.S.C. § 1437f)
- Primary part of Section 8 is the Housing Choice Voucher which pays a large portion of the rents and utilities of about 2.1 million households. ([Source](#))
- Vouchers can be applied to housing units that meet a minimum housing quality standard
- Eligibility is determined by the Public Housing Authority (PHA) based on income and family size
- See this [link](#) for more information

# Section 8 Housing Choice Voucher Program

- Section 8's Housing Choice Voucher isn't a housing voucher program like the one we discussed
- The Housing Choice Voucher pays a portion of the rent directly to the landlord and the families that get the voucher only pay 30% of their income in rent
- The payment to the landlord is based on a computation of the "fair market rent" for a housing unit that is large enough for the family
- "Fair market rent" is based on local market conditions
- The subsidy equals "fair market rent" minus 30% of the household's income. This is a positive number since these low-income families have low household income, so 30% of that is a small number
- So Section 8's Housing Choice Voucher is similar to a PRS
- Examples of section 8 housing in New Orleans can be found [here](#)