

# Personal Income Tax: Economic Foundation

**Ali Nassiri Aghdam**

Assistant Prof., Allameh Tabataba'i University

**Email:** [alin110@atu.ac.ir](mailto:alin110@atu.ac.ir)

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# Agenda



- Why PIT? Redistribution vs. Efficiency
- Tax Base: Haig-Simon's Definition of Income
- Tax Structure
- Fairness of the Tax System
- Tax Unit and Marriage Tax

# Part one: Why PIT? Redistribution vs. Efficiency

An incentive compatible redistributive tool  
Efficiency Loss and Optimal Income Tax



# Redistribution

## The First Fundamental Theorem of Welfare Economics:

- The Competitive Equilibrium is Efficient
  - **The Competitive Market:** Economic agents are price taker
  - **Efficient Allocation:** Impossibility of higher productivity by reallocating resources

## Observations:

- Too many efficient allocations can be reached through competitive market, most of them inequal.
- Should we leave market mechanism and adopt an alternative allocation mechanism to satisfy equity criterion?

# Redistribution

## The Second Fundamental Theorem of Welfare Economics:

- Any Efficient allocation can be reached as a Competitive Equilibrium.
  - **Defining optimal allocation:** Employing a welfare function to choose the best efficient allocation.
  - **The role of government:** Reallocating initial endowment through Lump Sum taxes and subsidies

## Observations:

- Competitive markets are neutral with regard to income distribution?
- Difficulties in defining optimal allocation
- Impossibility of implementing optimal Lump Sums

# Redistribution

## Income Tax

- A distinguished instrument of government to attain distributive goals and overcome unequal nature of free market outcomes.

## Observations:

- From **theoretical perspective**: "income taxation is typically the best mechanism, from among the set of incentive-compatible mechanisms, for achieving redistribution".
- From **empirical perspective**, there is a good deal of literature, which support redistributive nature of a well-designed PIT system.

# Inequality and income tax

Measure	SCV <sup>a</sup>		Gini		Atkinson <sup>b</sup>	
	before	after	before	after	before	after
Denmark 1994	0.671	0.229	0.420	0.217	0.209	0.041
Italy 1993	1.19	0.584	0.570	0.345	0.299	0.105
Japan 1994	0.536	0.296	0.340	0.265	0.124	0.059
Sweden 1995	0.894	0.217	0.487	0.230	0.262	0.049
United States 1995	0.811	0.441	0.455	0.344	0.205	0.101

Source: OECD ECO/WKP(98)2.

a. The squared coefficient of variation (SCV) is defined by  $SCV = H(1-C)$

b. For the Atkinson measure,  $\epsilon = 0.5$

# Implication



Having in effect a well designed Income Tax, permits government to follow market oriented policies to ensure productive efficiency and lessen inequality through PIT.

Otherwise, government is forced to put in effect variety of second best, distortionary Policies.



# Inefficiency: Cost of Redistributive Income Tax

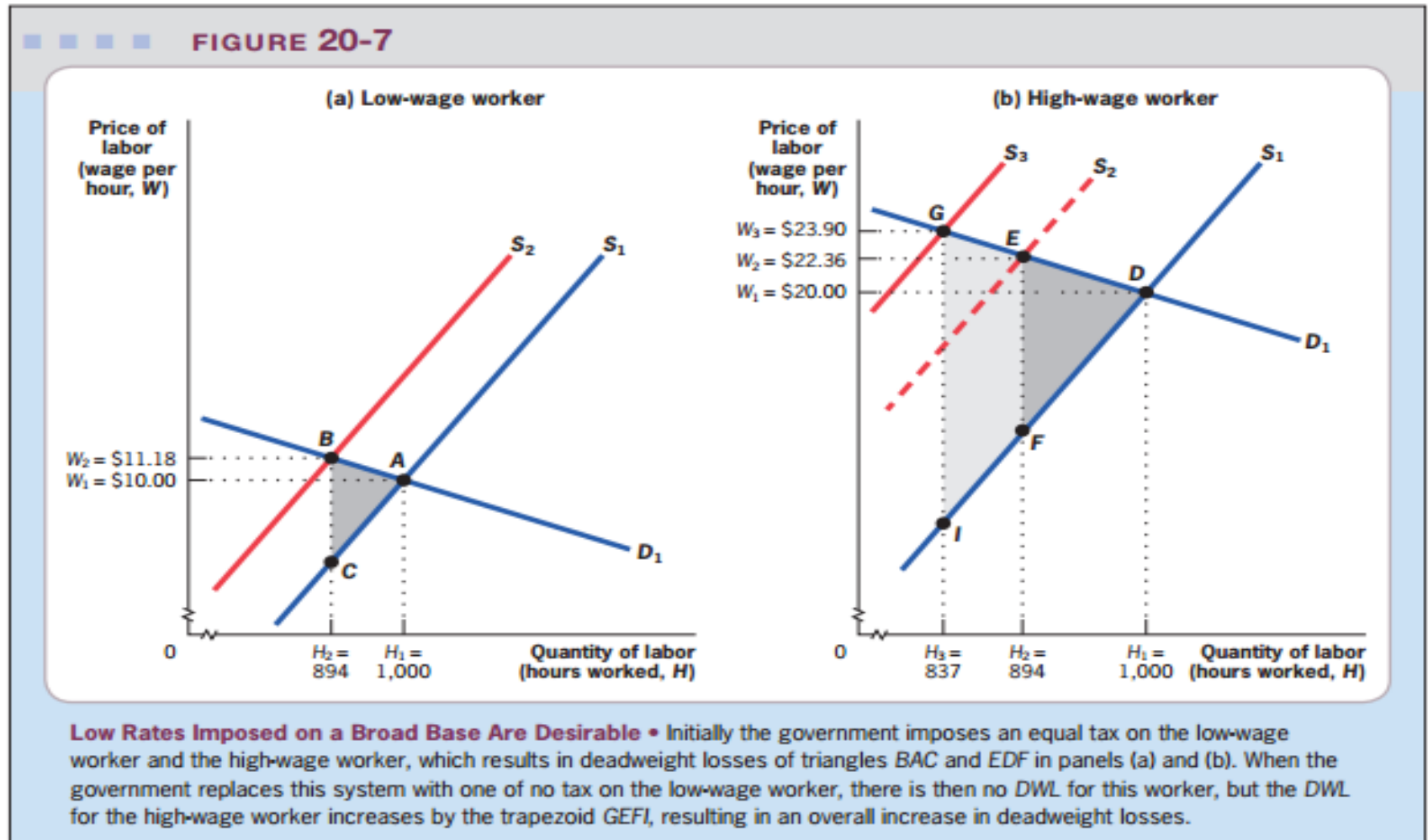


While income distribution improves by imposing income tax:

- Labor force replaces leisure for labor
- Consumer replaces consumption for saving

Heavier income tax implies larger efficiency loss

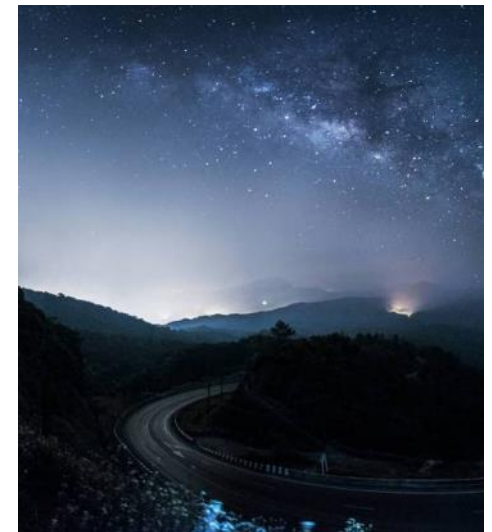
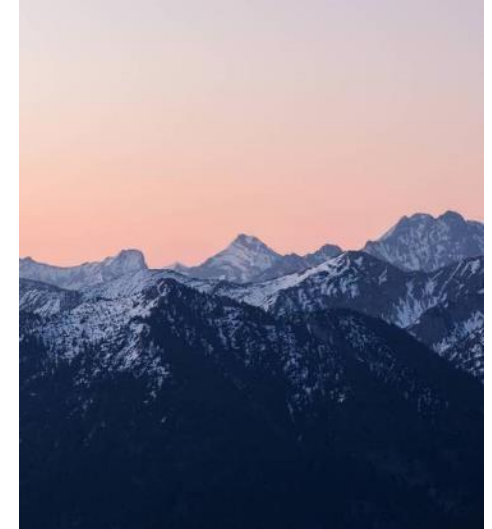
# Efficiency cost of income tax



Gruber (2016, Ch 20)

# Summary of Part One

- Optimal Lump Sum taxes are impossible
- Income tax is the best incentive compatible instrument to redistribute income
- Efficiency loss is a significant constraint which should be taken into account when designing tax structure



# Part Two: Tax Base: Haig-Simon's Definition of Income

Dealing with exemptions, Allowances and credits



# What Kind of Income Should be Taxed?

## Comprehensive Income: The Haig-Simons Definition

It is “the exercise of control over the use of society’s scarce resources.”

Algebraically it is defined as

$$I = C + \Delta NW$$

Where

$I$  = Income

$C$  = Consumption

$\Delta NW$  = The Change in Net Worth

- Taxable resources are an individual’s ability to pay (i.e. potential annual consumption).
- *Potential annual consumption*: Total consumption during the year, plus any increases in wealth.
- Haig-Simons definition satisfies “**equal treatment**” principle.

# HS or Comprehensive Income

## The “obvious” stuff

- Wages and salary
- Commissions
- Profits of privately-owned businesses
- Interest income from securities and bank accounts
- rental income
- tips

## Transfer payments

- Employment insurance benefit

## Gifts or inheritance received

## The net increase in the **real value** of a person's assets

## Income in kind

- The value of free (or subsidized) parking provided by an employer
- Frequent flyer miles earned from business trips
- The value of accommodation in owner-occupied housing

# Observation

Where Does the HS list (in previous slide) come from?

What makes the definition comprehensive?

*Potential consumption* rather than actual consumption

- A person's annual income is the value of what she / he **could** consume in that year, while keeping her wealth constant.
- *It is not what a person **does** consume in that year*
- It is what she / he could consume if he / she chose to **keep the value of her/his wealth constant.**

# Deviation from Haig-Simon

1

## Ability to pay considerations

- One reason for deviation is to account for what not associated with **desired consumption**.

## Typical Examples

- Deductions for *property and casualty losses*
- Deduction for *medical expenditures*
- Deduction for *state and local tax payments*



# Deviation from Haig-Simon

2

## What Are Appropriate Business Deductions?

- There are difficulties in defining **appropriate business deductions**
- **The legitimate** business costs (e.g. business meals)

## Typical Examples

- A rabbi claimed as a business expense the \$4,031 he spent on 700 guests who attended his son's bar mitzvah.
  - Tax court found the Rabbi "was not required to invite the entire... congregation...as a condition of his employment."
- An exotic dancer claimed breasted implants as a business expense.
  - Tax court agreed since the implants were far too large for the dancer to derive pleasure from.

# Deviation from Haig-Simon

2

## What Are Appropriate Business Deductions?

- There are difficulties in defining **appropriate business deductions**
- **The legitimate** business costs (e.g. business meals)

## Typical Examples

- The entertainer Dinah Shore claimed several dresses as business expenses, prompting an investigation by the IRS.
  - “Dinah Shore ruling”: A dress may be deducted as a business expense only if it is too tight to sit in.
- A man tried to deduct \$30,000 in expenses on illegal drugs.
  - Allowed to claim deductions, he was sentenced for criminal charges.
- Many OECD countries have traditionally allowed/ treated foreign bribes as business expenses.

# Deviation from Haig-Simon

4

## Externalities / Public Goods rational

### 1. Charitable Giving

- Example: deducting contributions to charities to provide shelters
- Spending Crowd-Out versus Tax Subsidy Crowd-In

## An Observation

- The government could provide homeless shelters itself. Why not do so?
- If the government subsidizes homeless shelters, the amount of private charitable giving to those shelters would most likely fall.
- When the government tax subsidizes charitable giving, it may “crowd in,” or increase, private contributions.

# Deviation from Haig-Simon

4

## Externalities / Public Goods rational

### 1. Charitable Giving

- Example: deducting contributions to charities to provide shelters
- Difference between marginal and infra marginal impact

## Observation 2

- Contribution: 1000 \$
- Tax expenditure (by assuming 25% marginal rate)= 250 \$
- The net benefit= 750 \$
- Is contribution to charities due to tax subsidy?

# Deviation from Haig-Simon

4

## Externalities / Public Goods rational

### 1. Charitable Giving

- Consumer sovereignty vs. imperfect information

## Observation 3

- Direct government provision imposes preferences about how funds are spent.
- Tax subsidies to private individuals respects the preferences of citizens.
- But the private sector may not have the appropriate mechanisms in place to ensure efficient distribution of charitable spending.

# Deviation from Haig-Simon

4

## Externalities / Public Goods rational

### 2. Housing expenditure

- Deductibility of interest on home mortgages / loan
- **Mortgage:** Agreement to use a certain property, usually a home, as security for a loan.
- Question: Should rent expenditure be deductible?

## Why Subsidize home ownership?

- Externality:
  - ✓ Care about their neighborhoods and towns (have a stake in democracy)
  - ✓ Take better care of their properties

# Deviation from Haig-Simon

4

## Externalities / Public Goods rational

### 2. Housing expenditure

- Empirical results
- Despite wide variation in this tax subsidy, the home ownership rate has remained essentially constant since the 1950s, at about 65%.
- The tax subsidy is inducing individuals to spend more on houses, but not moving people from renting to buying.

## An Experiment

- Subsidy increased home ownership by 7–13%.
- But no external benefits:
  - Treatment and control groups equally involved in civic activities.
  - Treatment group spent more on home improvements, but only on the inside, providing no external benefit.

# Deviation from Haig-Simon

## Tax Expenditure

- Deviations from Haig-Simons are tax expenditures.
  - **Tax expenditures:** Government revenue losses attributable to tax law provisions that allow special exclusions, exemptions, or deductions from gross income, or that provide a special credit, preferential tax rate, or deferral of liability.
- Tax expenditures are enormous, predicted to be \$1.3 trillion in 2013.

## Selected tax exp. in 2013

Tax Expenditure	Amount (Millions)
Employer-provided health insurance	\$180,580
Home mortgage interest deduction	100,910
Exclusion of pension/401(k) contributions	72,740
Exclusion of net imputed rental income	51,080
Deductibility of charitable contributions	39,770
<b>Total income tax expenditures</b>	<b>1,135,967</b>



# Part Three: Tax Structure

Tax Rates and Tax Systems

Progressive, Proportional and Regressive Tax Systems



# To Understand Tax Structure

- What is the tax base? Or how should the tax base be computed? Or how taxpayers HS income adjusts to derive taxable income?
  - Adjustments and deductions
- How much of the income should be paid to government as the tax?
  - Exemptions
  - Tax rates
  - Tax credit

# Tax Base

## Gross Income

- Individual's HS income:  
The total Income from various sources of income

## Adjusted GI

- An individual's gross income minus certain adjustments:
  - ■■ Contributions to retirement savings through Individual Retirement Accounts (IRAs) or self-employed pension plans.
  - ■■ Alimony paid to a former spouse.
  - ■■ Health insurance premiums paid by the self-employed.
  - ■■ One-half of the payroll taxes paid by the self-employed.

## Taxable Income

- The amount of income left after subtracting exemptions and deductions from adjusted gross income.

## Exemptions

- a fixed amount of money that can be deducted for the taxpayer, the taxpayer's spouse, and any other dependents who live in the house
- Such as children or elders who depend on the taxpayer and spouse for financial support

## Standard deductions

- A fixed amount that a taxpayer can deduct from taxable income.

## Itemized deductions

- a taxpayer deducts the total amount of money spent on various expenses, such as
- Gifts to charity
- interest on home mortgages.
- Medical and dental expenses
- Casualty and theft losses.

# Computing tax base and due taxes: An Example

■ ■ ■ **TABLE 18-1**

## Computing Jack's Income Tax

Gross income		\$70,000
–Deductions		–2,000
<hr/>		
=Adjusted gross income (AGI)		=68,000
–Exemptions		–19,750
–Standard (or itemized) deduction		–12,400
<hr/>		
=Taxable income		=35,850
	↓	
	Use income tax schedule (Figure 18-3)	
=Taxes owed		=4,455
–Credits		–3,000
<hr/>		
=Total tax payment		=14,55
–Withholding		–2,000
<hr/>		
=Final payment (refund) due		=(545)

## Marginal tax rate

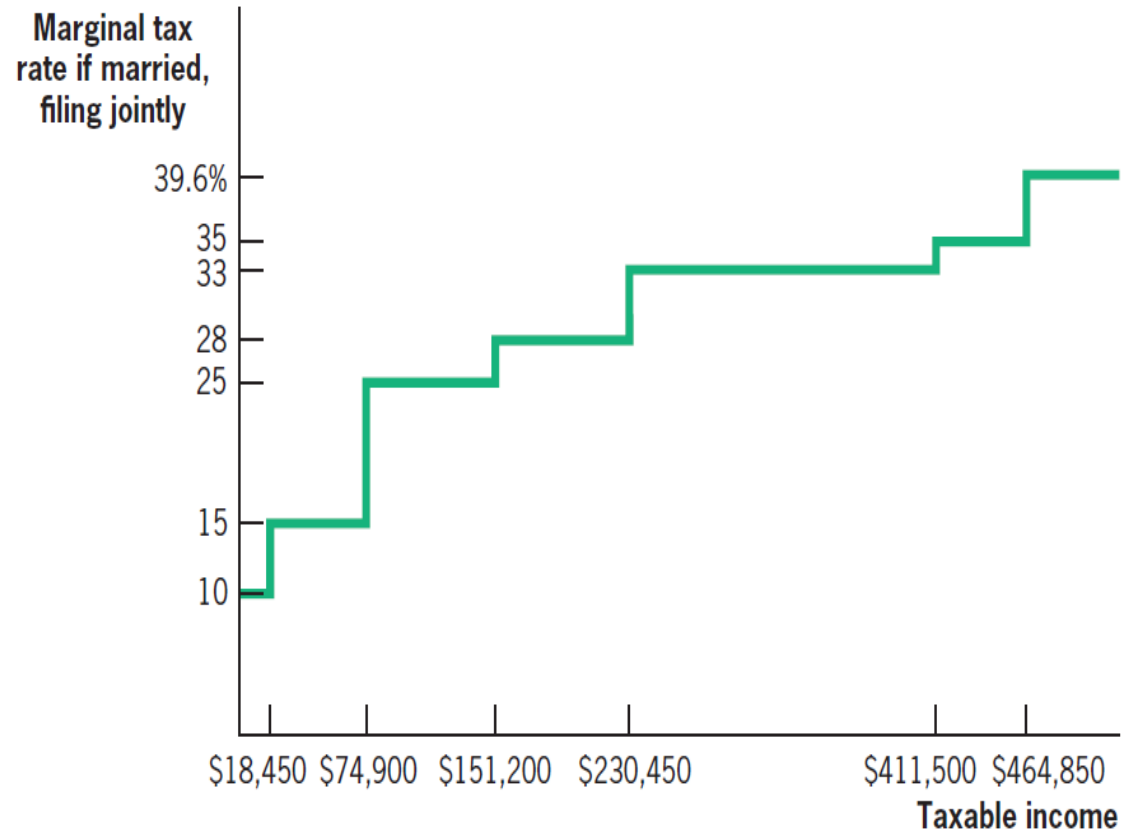
- The percentage that is paid in taxes of the next dollar earned.

## Average tax rate

- The percentage of total income that is paid in taxes.

# U.S. federal income tax schedule, 2014

FIGURE 18-3



**U.S. Federal Income Tax Rate Schedule, 2015** • In 2015, the tax rate on the next dollar of taxable income varied from 10% on married couples with taxable incomes below \$18,450 to 39.6% on those with taxable incomes above \$464,850.

Data from: Tax Policy Center (2014).

# Computing tax base and due taxes: An Example

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# Tax Credits and Withholding

## Tax Credits

- Amounts by which taxpayers are allowed to reduce the taxes they owe to the government through spending
- The Child Tax Credit
- The Credit for Child and Dependent Care Expenses
- The Credit for the Elderly or Disabled
- paying for educational expenses of family members
- For hiring as employees welfare recipients, ex-felons,
- The Work Opportunity Credit
- The Earned Income Tax Credit

## Withholding

- The subtraction of estimated taxes owed directly from a worker's earnings.

## Refund

- The difference between the amount withheld from a worker's earnings and the taxes owed if the former is higher.

# Computing tax base and due taxes: An Example

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# Part Four: The Fairness of the Tax System

Vertical Equity and Horizontal Equity



## Vertical Equity

- The principle that groups with more resources should pay higher taxes than groups with fewer resources.

## Horizontal Equity

- The principle that similar individuals who make different economic choices should be treated similarly by the tax system.

# Measuring Vertical Equity

## Progressive

- Tax systems in which effective average tax rates rise with income.

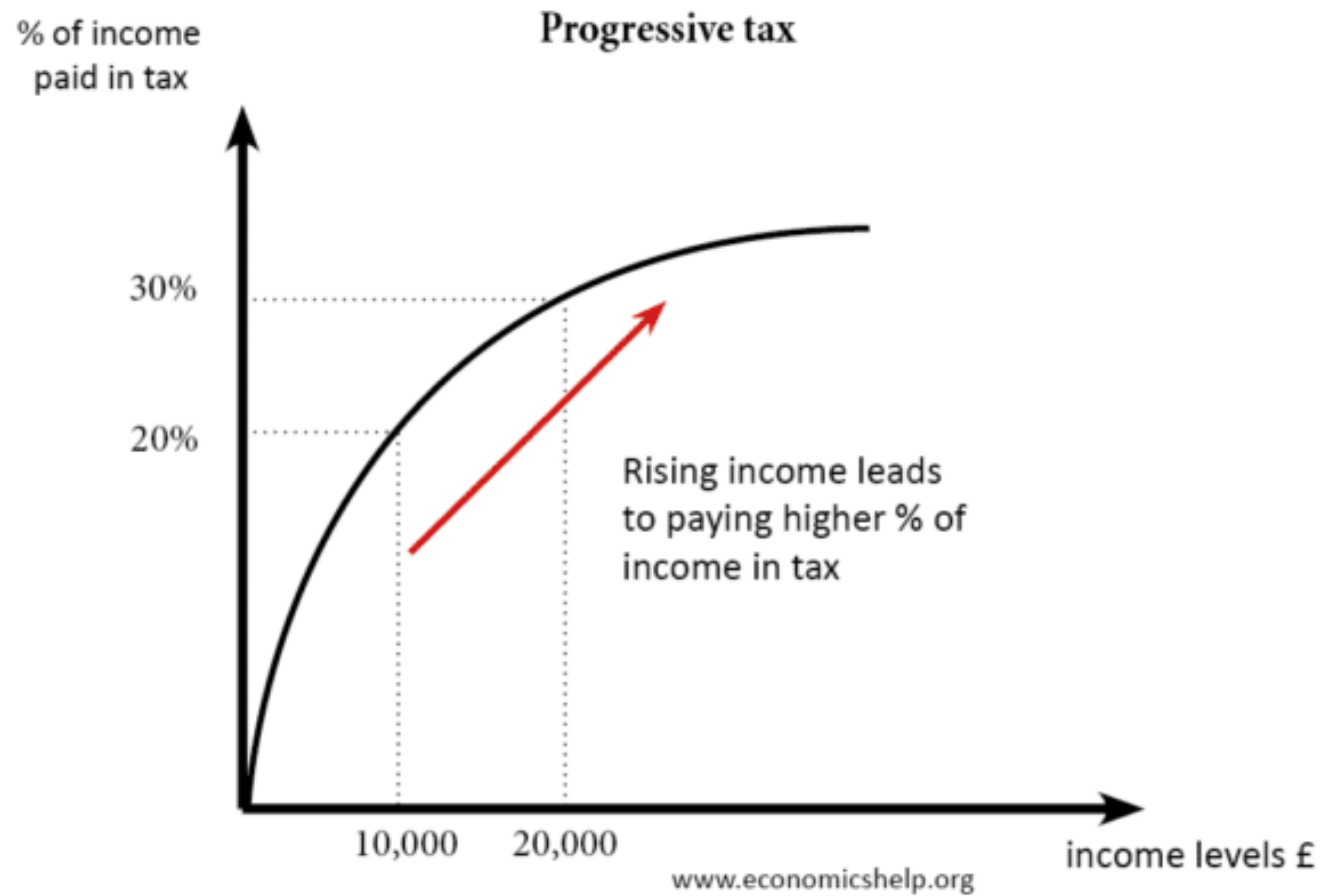
## Proportional

- Tax systems in which effective average tax rates do not change with income, so that all taxpayers pay the same proportion of their income in taxes.

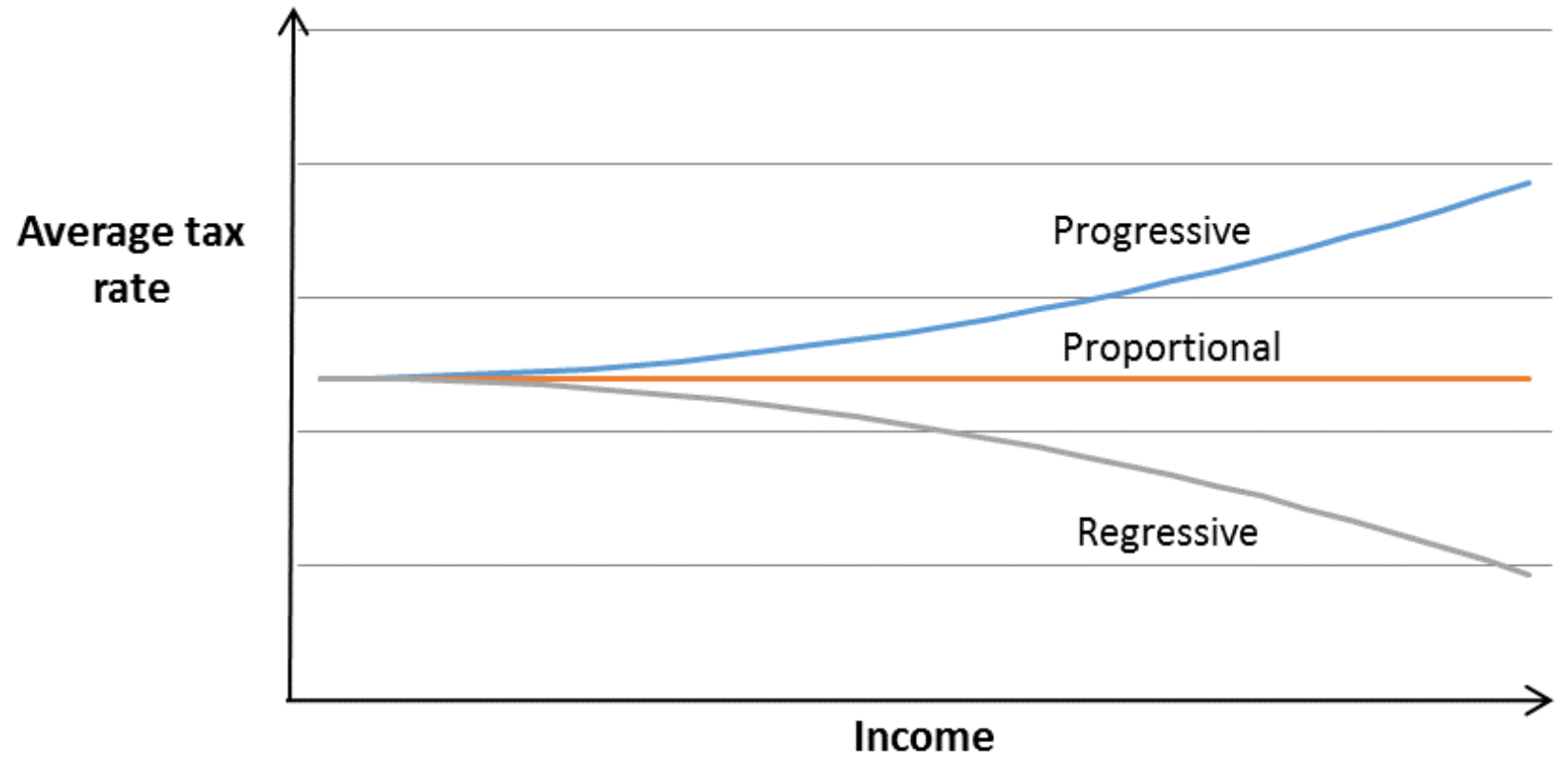
## Regressive

- Tax systems in which effective average tax rates fall with income.

# Progressive tax System



# Progressive tax System



# Wage tax schedule Iran, 2020

Income	Marginal tax rates
To 36 m.t.	exempted
From 54 m.t. to 54 m.t.	10 %
From 36 m.t. to 90 m.t.	15%
From 90 m.t. to 140 m.t.	20%
From 140 m.t. to ---	25%



# Part Five: Tax Unit and Marriage Tax

Vertical Equity and Horizontal Equity



# The problem of the “Marriage Tax”

## Tax unit

- Who should be taxed?
- Income at source?
- Individual HS income?
- Couples HS income?

## Criteria

- How should couples be taxed?
- We might like a tax system to satisfy three principles:
  - *Progressivity*
  - *Across-Family Horizontal Equity*
  - *Across-Marriage Horizontal Equity*
- It is impossible to achieve all three goals at once.

# The problem of the “Marriage Tax”

- Any tax system that tries to achieve horizontal equity and progressivity have a marriage tax for some people.
  - **Marriage tax:** A rise in the joint tax burden on two individuals from becoming married.
- Progressivity, with taxes applied to individual income, means that two couples with different earnings distributions have different tax burdens.
- Taxing family incomes leads to a marriage tax.

# The problem of the "Marriage Tax"

Couple	Income Earner	Income	Individual tax	Family Tax
First	Male	100	9.2	
	Female	100	9.2	
	Total	200	18.4	32.2
Second	Male	150	19.7	
	Female	50	1.4	
	Total	200	21.1	32.2

# “Marriage Tax” in practice

- Very large deductions for married couples relative to single tax filers would eliminate marriage tax.
- But no set of deductions can make the system of family-based taxation marriage *neutral*.
- **Marriage Taxes in the United States**
  - Some families face marriage subsidies and some face marriage taxes.
  - *Some* families pay marriage taxes.

# “Marriage Tax” in practice

- The United States is almost alone in having a tax system based on family income.
- Of the industrialized nations in the OECD,
  - 19 tax husbands and wives individually...
  - ...five (France, Germany, Luxembourg, Portugal, and Switzerland) offer marriage subsidies to virtually all couples through family taxation with *income splitting*.



**Ali Nassiri  
Aghdam**

**Email:  
alin110@atu.ac.ir**

**<https://piteu.atu.ac.ir>**

**Thank you**