# HUMAN CAPITAL AND THE NATIONAL ACCOUNTS

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# HUMAN CAPITAL AND THE NATIONAL ACCOUNTS

### WHY THE NATIONAL ACCOUNTS?

The National Accounts Include Key Indicators of Economic Welfare and Growth: Net National Expenditure and Gross Domestic Product.

## WHERE DOES HUMAN CAPITAL FIT IN?

Production, Income and Expenditure, Capital and Wealth Accounts.

### WHAT ABOUT THE DETAILS?

The National Accounts Produce Detail for Foreign and Domestic Portions of the Economy, Individual Industries, and Regions of the Country

## New Architecture for an Expanded and Integrated Set of National Accounts for the United States

#### 1. PRODUCTION

**Gross Domestic Product Equals** 

**Gross Domestic Factor Outlay** 

#### 2. DOMESTIC RECEIPTS

#### AND EXPENDITURES

**Domestic Receipts Equal** 

Domestic Expenditure

#### 4. DOMESTIC CAPITAL ACCOUNT

**Gross Domestic Capital Formation Equals** 

**Gross Domestic Savings** 

#### 6. DOMESTIC BALANCE SHEET

Domestic Wealth Equals

Domestic Tangible Assets and

U.S. Net International Position

#### 3. FOREIGN TRANSACTION CURRENT ACCOUNT

Receipts from Rest of World Equal

Payments to Rest of World and

**Balance on Current Account** 

#### 5. FOREIGN TRANSACTION CAPITAL ACCOUNT

**Balance on Current Account Equals** 

Payments to Rest of the World and

Net Lending or Borrowing

#### 7. U.S. INTERNATIONAL POSITION

U.S.-Owned Assets Abroad Equal

Foreign-Owned Assets in U.S. and

U.S. Net International Position



National Bureau of Economic Research

Studies in Income and Wealth Volume 66 A New Architecture for the U.S. National Accounts

Edited by
Dale W. Jorgenson,
J. Steven Landefeld, and
William D. Nordhaus

## THE CONCEPT OF HUMAN CAPITAL

Investment in Physical Capital vs. Investment in Human Beings

Human Wealth vs. Nonhuman Wealth

Market and Nonmarket Labor Incomes

Lifetime Labor Incomes and Asset Values

## IS HUMAN CAPITAL IMPORTANT?

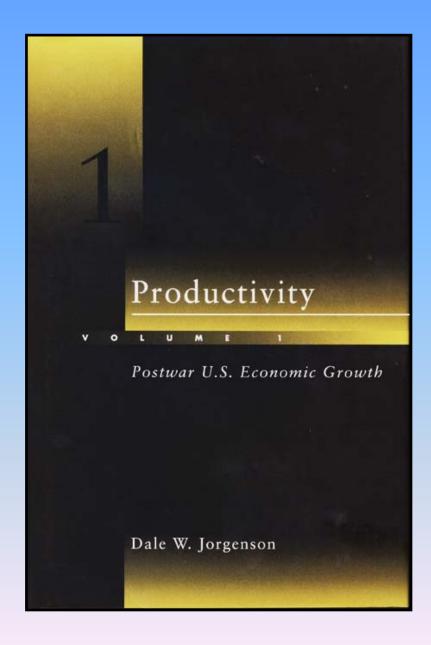
Nonmarket Compensation Includes Leisure Time, Household Production, Investment in Education and Investment in Child-Rearing

Nonmarket Labor Compensation is Four Times the Value of Market Compensation

The Value of Human Investment Is Four Times the Value of Nonhuman Investment

Human Wealth is Ten Times the Value of Nonhuman Wealth

Source: Jorgenson and Fraumeni (1989, 1992)



## RELATIONSHIPS TO THE LITERATURE

MEASURING CAPITAL: Canberra II and Schreyer's OECD Manual (2009), Approved by the United Nations Statistical Commission (2007).

A NEW ARCHITECTURE FOR THE U.S. NATIONAL ACCOUNTS: Jorgenson, Landefeld, and Nordhaus (2006).

INVESTMENT IN EDUCATION: Jorgenson and Fraumeni (1992).

INVESTMENT IN HEALTH: Cutler and Richardson (1997), Cutler, Rosen, and Vijan (2006).

THE PIONEERS: Machlup (1962), Nordhaus and Tobin (1972), Schultz (1961), and Kendrick (1976).

## **MEASURING HUMAN CAPITAL**

The Starting Point: Population

Market Labor Data Base: Employment, Hours, and Market Compensation

Nonmarket Labor Data Base: Population, Hours, and Imputed Compensation

Time Use Surveys

Separation into Quantity (Hours) and Price (Wages Plus Fringe Payments) Components

# Productivity Information Technology and the American Growth Resurgence

Dale W. Jorgenson, Mun S. Ho, and Kevin J. Stiroh

## LIFETIME LABOR INCOMES

**Three Stages of Life:** 

Working and out of School

Working and in School

Not Working and in School

## LIFETIME LABOR INCOMES FOR WORKERS NOT IN SCHOOL

**Expected Incomes in the Future** 

**Growth of Real Incomes** 

Survival Probabilities

**Discount Rates** 

## LIFETIME LABOR INCOMES FOR WORKERS IN SCHOOL

Investment in Education:
Increment in Lifetime Income for an Additional Year of Education

Example: An Individual with Sixteen Years of Education

Total Labor Compensation:
Time Spent in Formal School Plus
Labor Compensation for Market and
Nonmarket Labor Time

## LIFETIME LABOR INCOMES FOR STUDENTS IN SCHOOL

Value of Labor Compensation: Increment in Lifetime Incomes

Individuals Not Enrolled in School Have Lifetime Incomes But No Labor Compensation

Human Wealth Is the Value of Lifetime Incomes for the Population

This Can Be Separated Into Quantity (Number of Individuals) and Price (Lifetime Income) Components

## INVESTMENT IN HUMAN CAPITAL

Lifetime Incomes for All Individuals
Born in That Year Plus:

Lifetime Incomes for All Immigrants Plus:

Labor Compensation for Formal Schooling (Investment in Education)

Each of These Can Be Separated Into Quantity (Number of Individuals) and Price Components

## HUMAN CAPITAL AND NONMARKET ACCOUNTING

Why Nonmarket?

Nonmarket Labor Compensation:
Leisure Time, Household Production,
Investment in Education, and
Investment in Child-Rearing

The Value of Additions to the Population: Newborns and Immigrants.

The Value of Investment in Formal Schooling

# HUMAN CAPITAL AND THE NATIONAL ACCOUNTS: SUMMARY

### **INDICATORS OF WELFARE AND GROWTH:**

Net National Expenditure (Welfare) and Gross Domestic Product (Growth) Include Human Capital.

### **MEASURING CAPITAL:**

The Same Principles Apply to Human and Nonhuman Capital. These Were Approved by the United Nations Statistical Commission in 2007.

### **NONMARKET ACCOUNTS:**

Leisure Time, Household Production, Investment in Education and Child-Rearing, and Additions to the Population Require Nonmarket Accounts.

### STRUCTURE OF THE ACCOUNTS:

Human Capital Appears in All Parts of the National Accounts; the Structure Remains the Same.