

INTERMEDIATE MACROECONOMICS

MACROECONOMIC CONCEPTS

2. DEFINING GDP

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[pascalmichailat.org/c4/](http://pascalmichailat.org/c4/)

GDP

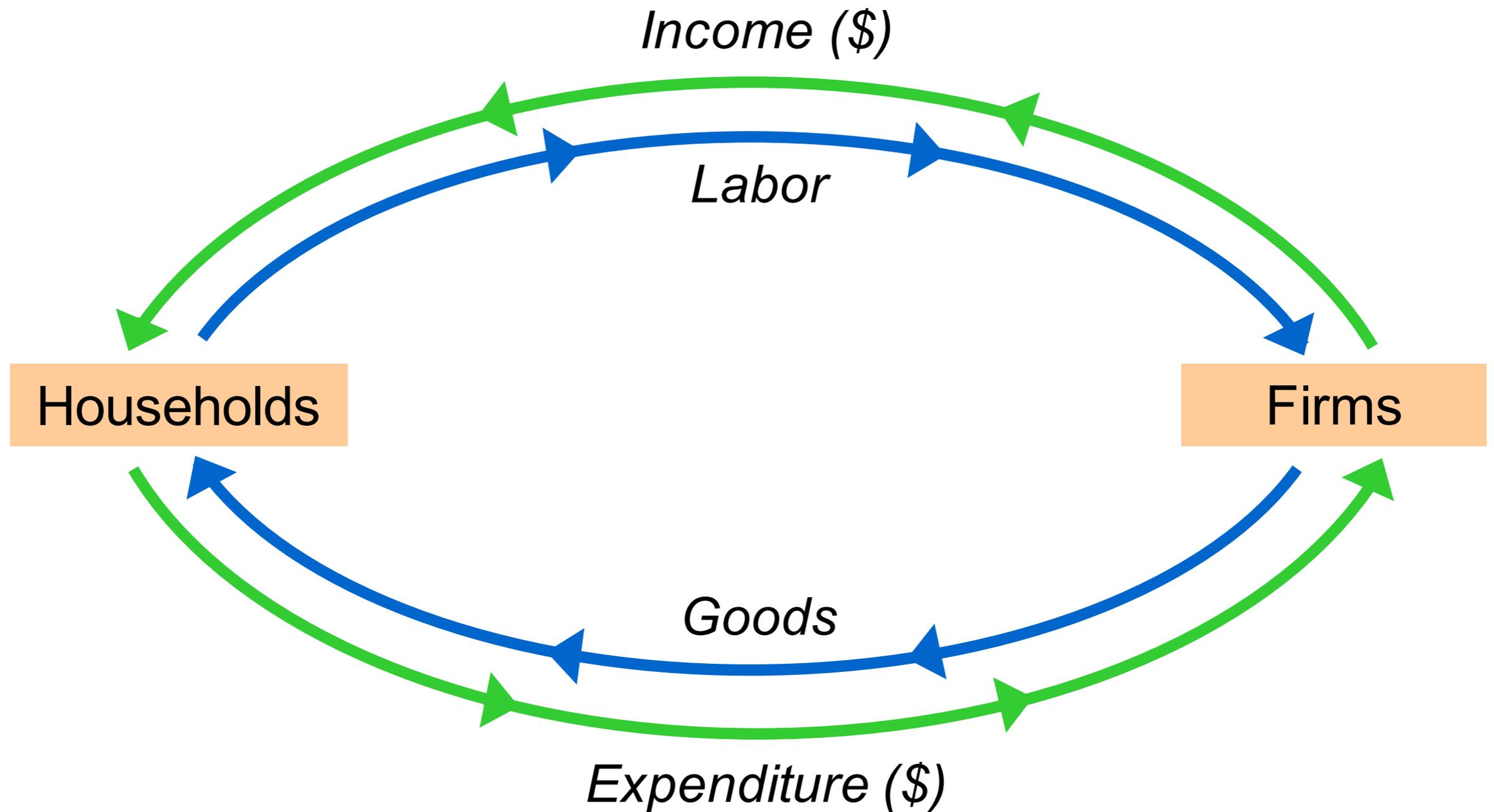
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GROSS DOMESTIC  
PRODUCT

# MEASURING GDP

- 3 definitions, based on income, value added, and expenditure on final goods and services
- definitions are equivalent
  - aggregate income = aggregate value added = aggregate expenditure on final goods and services
- in the US: GDP measured since 1947 by Bureau of Economic Analysis (BEA) using expenditure approach

# INCOME = EXPENDITURE



# GDP: DEFINITION 1

- GDP = all incomes in the economy
- using this income approach, we have
  - labor income:  $\$80 + \$70 = \$150$
  - capital or profit income:  $\$20 + \$30 = \$50$
  - $\text{GDP} = \$150 + \$50 = \$200$
- if value is created, it is an income to someone, so sum of incomes indicates value created in the economy

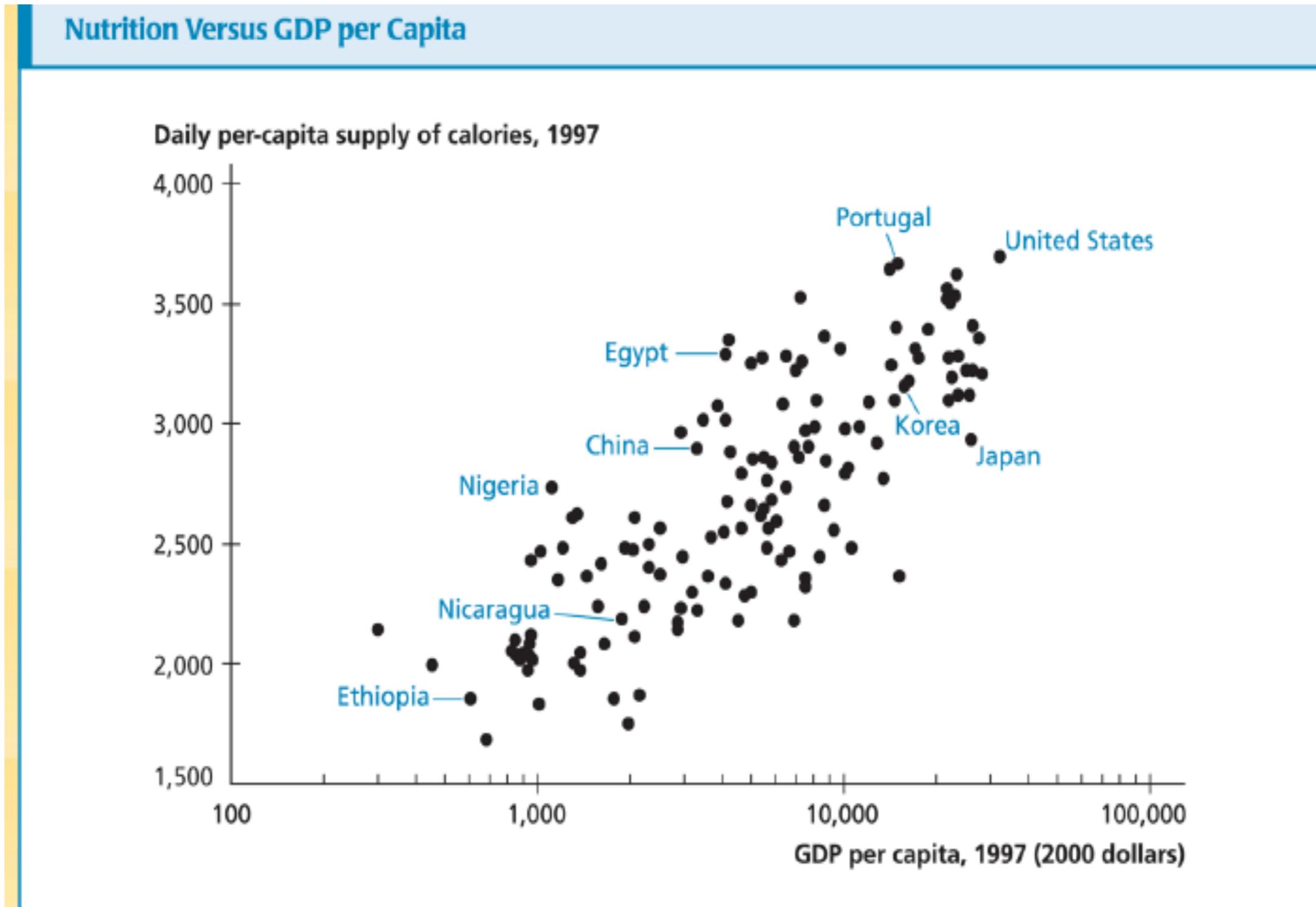
# GDP: DEFINITION 2

- GDP = all value added in the economy
- value added by a firm = value of output (sales) - value of intermediate goods used in production (costs of intermediate goods)
- using this value-added approach, we have
  - value added of steel company:  $\$100 - \$0 = \$100$
  - value added of car company:  $\$200 - \$100 = \$100$
  - $GDP = \$100 + \$100 = \$200$

# GDP: DEFINITION 3

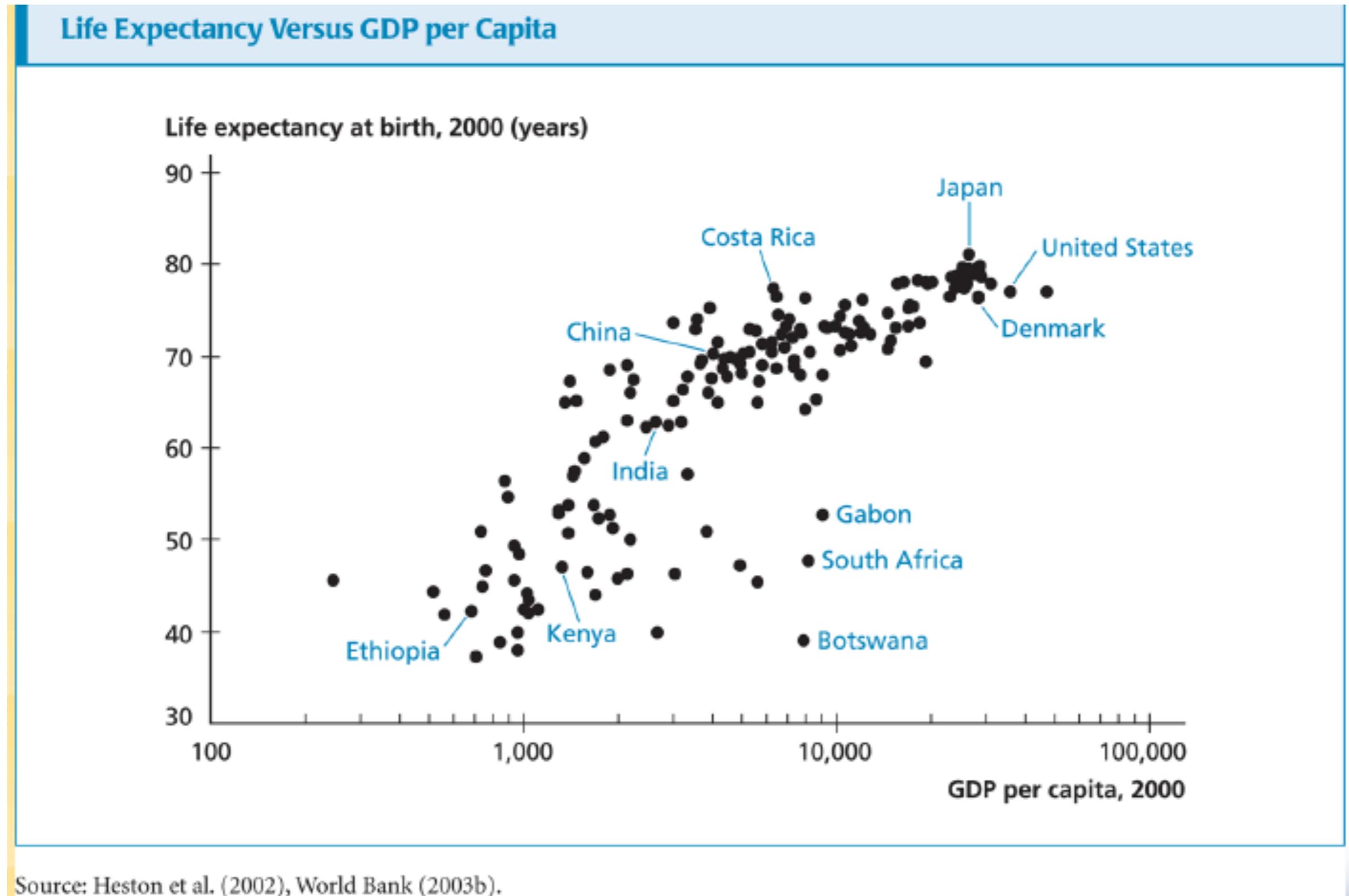
- GDP = value of all final goods & services in the economy
  - the value of intermediate goods is not counted
  - intermediate goods are used in the production of another good
  - final goods are sold to consumers, not used for production
- using this **expenditure approach**, we have
  - value of final goods by steel company: \$0
  - value of final goods by car company: \$200
  - $GDP = \$0 + \$200 = \$200$

# WHY DO WE CARE ABOUT GDP?

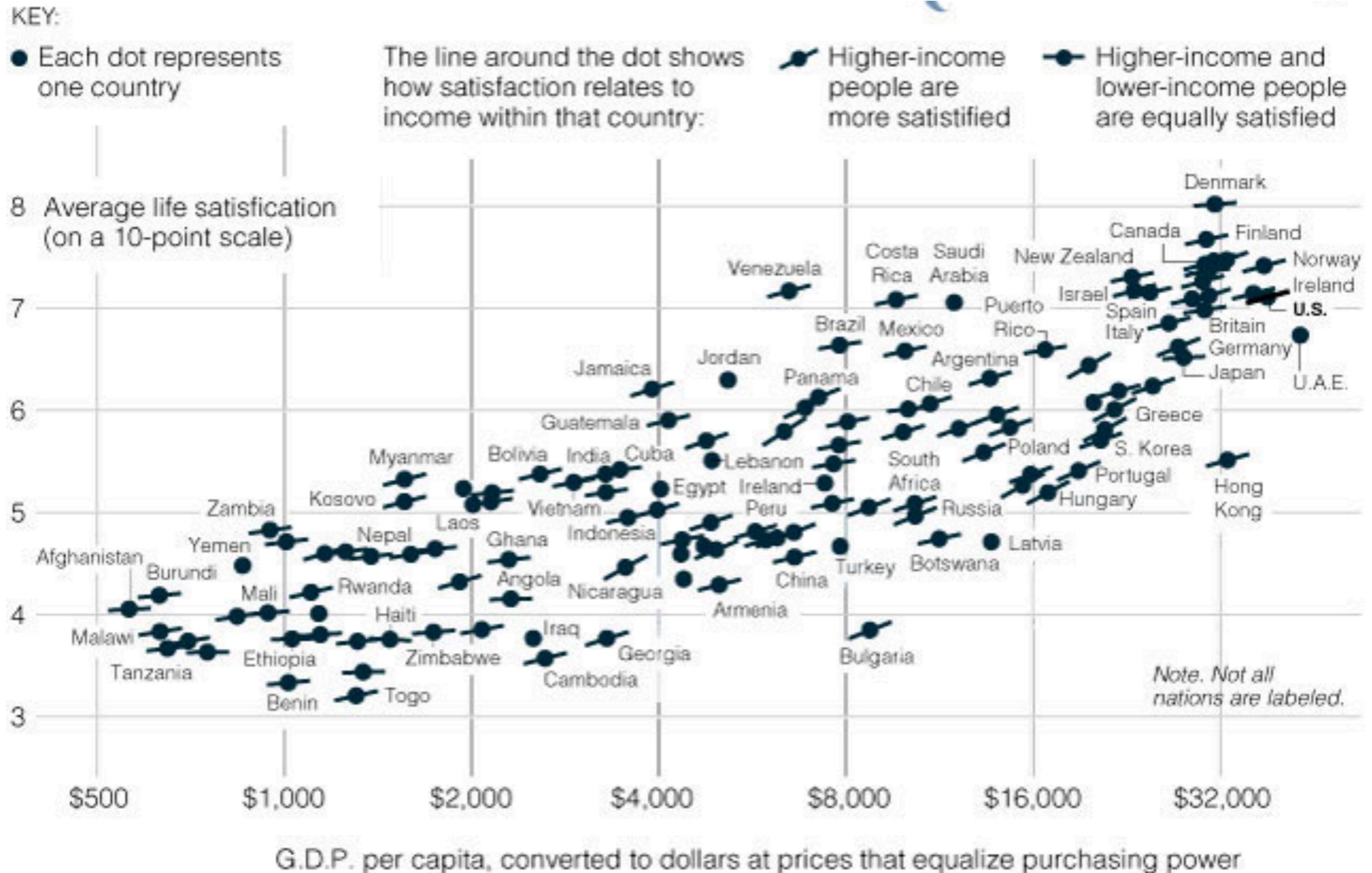


Source: FAOSTAT database. Heston et al. (2002).

# WHY DO WE CARE ABOUT GDP?



# WHY DO WE CARE ABOUT GDP?



Source: Betsey Stevenson and Justin Wolfers, Wharton School at the University of Pennsylvania

THE NEW YORK TIMES

# GDP VERSUS GNP

- **gross domestic product (GDP)**: income earned by **domestically located factors of production** (labor & capital), regardless of nationality
- **gross national product (GNP)**: income earned by the **nation's factors of production** (labor & capital), regardless of location
- $GNP = GDP + NFP$
- **net factor payments (NFP)**: income paid to nation's factors of production located abroad minus income paid to foreign factors of productions located domestically

# GDP VERSUS GNP, 2012

<b>Country</b>	<b>GNP</b>	<b>GDP</b>	<b>GNP – GDP (% of GDP)</b>
Bangladesh	127,672	116,355	9.7
Japan	6,150,132	5,961,066	3.2
China	8,184,963	8,227,103	-0.5
United States	16,514,500	16,244,600	1.7
India	1,837,279	1,858,740	-1.2
Canada	1,821,424	1,779,635	2.3
Greece	250,167	248,939	0.5
Iraq	216,453	215,838	0.3
Ireland	171,996	210,636	-18.3

# WHAT IS NOT IN GDP

- household production
- non-market transactions (barter)
- natural resources depleted by production
- leisure, inequality, health, social / political liberties
- new indicators are developed to better measure **well-being**
  - gross national happiness (GNH) in Bhutan since 1972
  - <https://www.nytimes.com/2017/01/17/world/asia/bhutan-gross-national-happiness-indicator-.html>