LADLF Laos-Australia DEVELOPMENT LEARNING FACILITY
An Australian Aid project managed by Adam Smith International

Training on Macroeconomics

Monitoring Economic Performance

Does shrinking fiscal space affect the economy?

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Managed by: Adam Smith International

Supported by: Australian Aid

What is economic monitor?

- **Economic monitor is an assessment of economic performance against its objective.** The objective could be long-run growth (i.e., sustainable growth) or short-run growth (i.e., recovery of growth from the global financial crisis).
- A report of economic monitor includes two components: (1) what happens to the economy; and (2) what causes the economy to fluctuate.
- The purpose of economic monitor is to provide evidence-based recommendations for macroeconomic policies such as fiscal policy and monetary policy.

Does economic performance affect development projects?

- The implementation of **development projects in education and health sectors** depends on the availability of **budget** from the central government and donors.
- **Public revenue** is more available in the period of high **economic growth** than in the period of low economic growth.

  Growth⬇ ⇨ Public Rev.⬇ ⇨ Public Exp.⬇

- Lower public revenue results in lower public expenditure, which is likely to reduce budget for development projects.

  Public Exp.⬇ ⇨ Civil servants⬇ ⇨ Dev. Budget⬇

Purposes of training

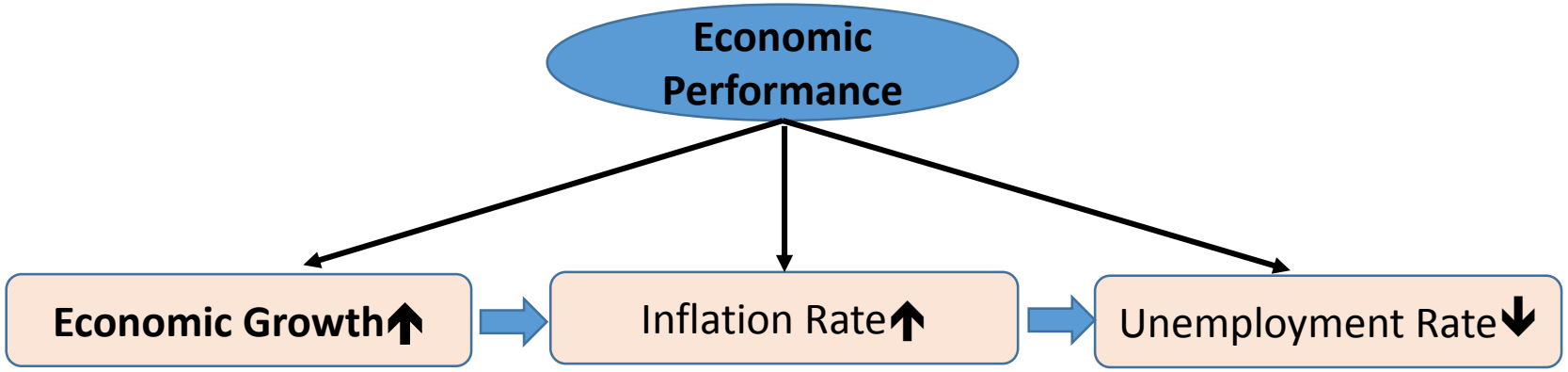
1. Explain how the economy works using the circular flow model.
2. Measure the size of the economy and its components.
3. Analyze the impact of fiscal policy on the economy.
4. Explore economic rationale of IMF recommendation on fiscal consolidation in Article IV (2017).

Economic principles for explaining how the economy works

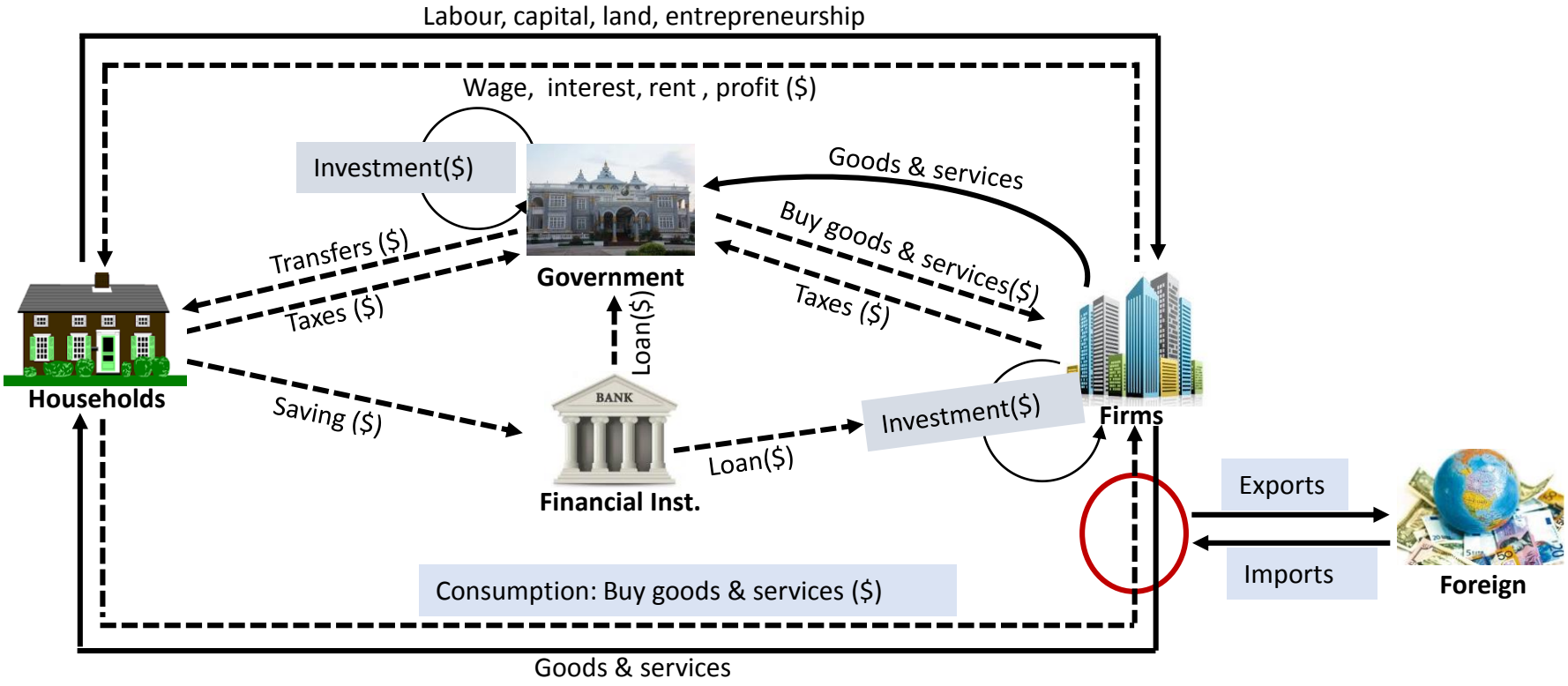
Principle 1: A country's **standard of living** depends on its **ability to produce goods and services**.

Principle 2: **Price** rises when the **government prints** too much **money**.

Principle 3: Society faces a short-run **tradeoff between inflation and unemployment**.



How the economy works:
Circular flow of economic activity

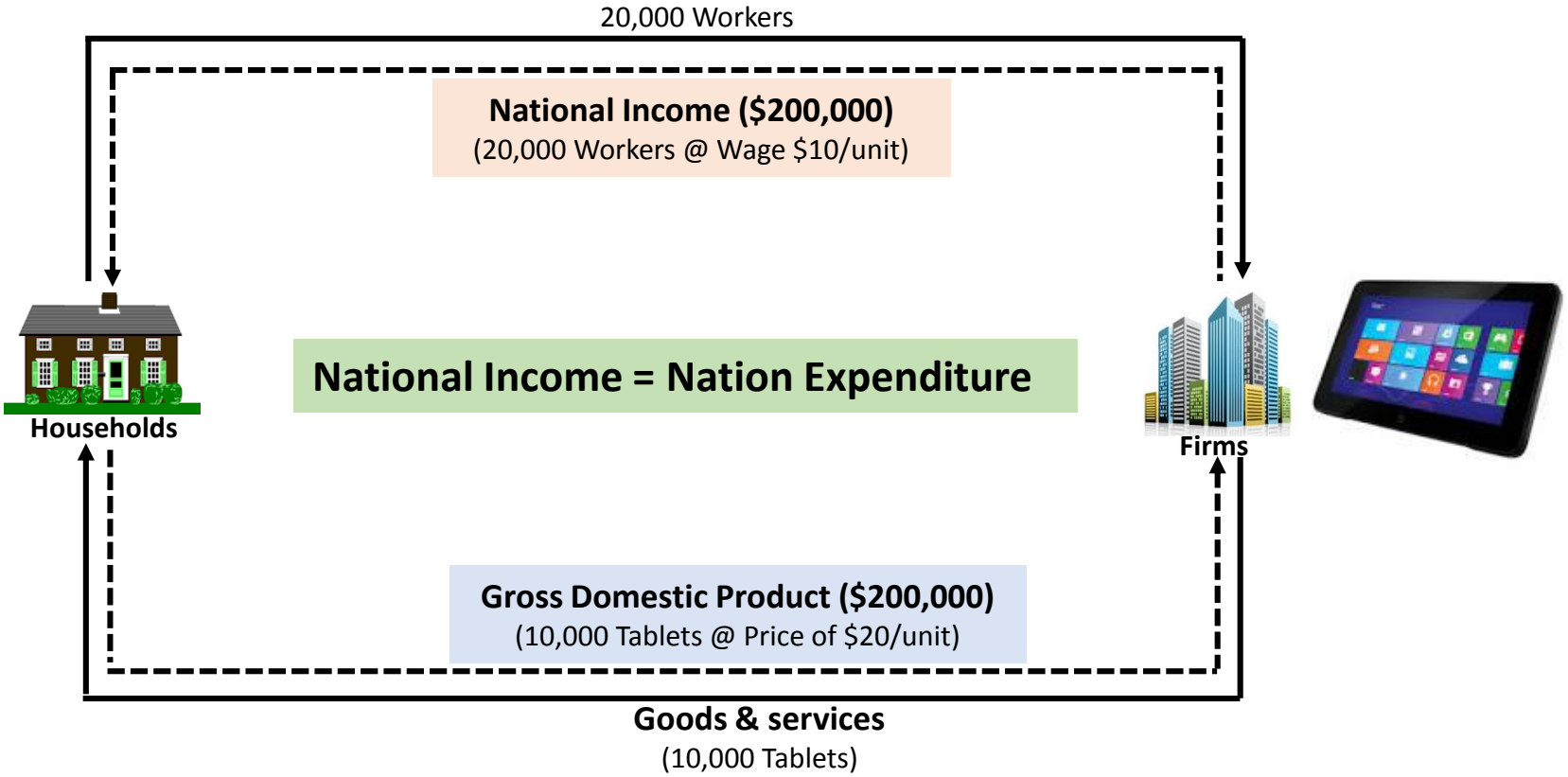


Circular flow of economic activity:
Numerical example

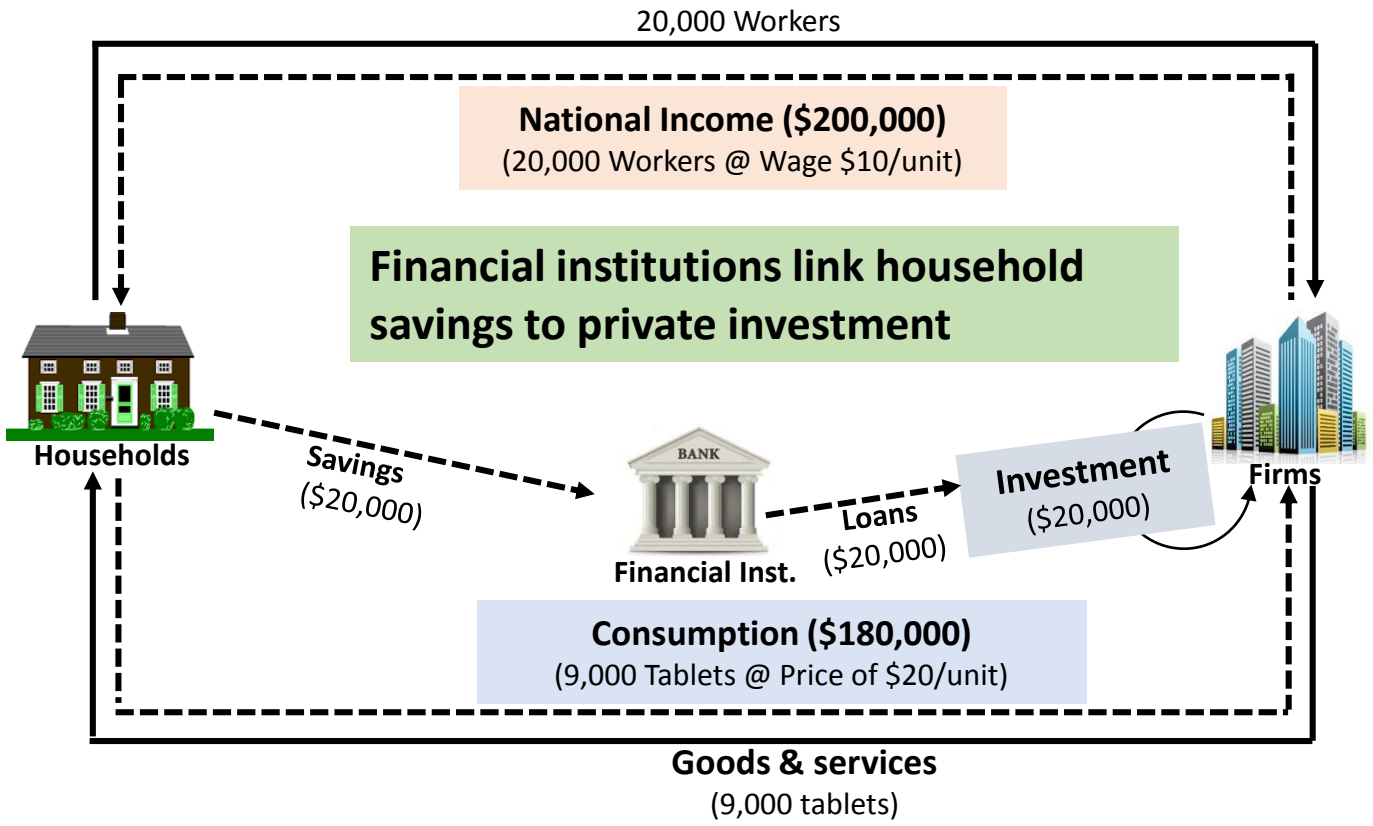
Assumptions:

- **Two sectors**: Households & firms
- **One goods**: Tablet
- **One factor of production**: Labour

Circular flow of economic activity: Two-sector model



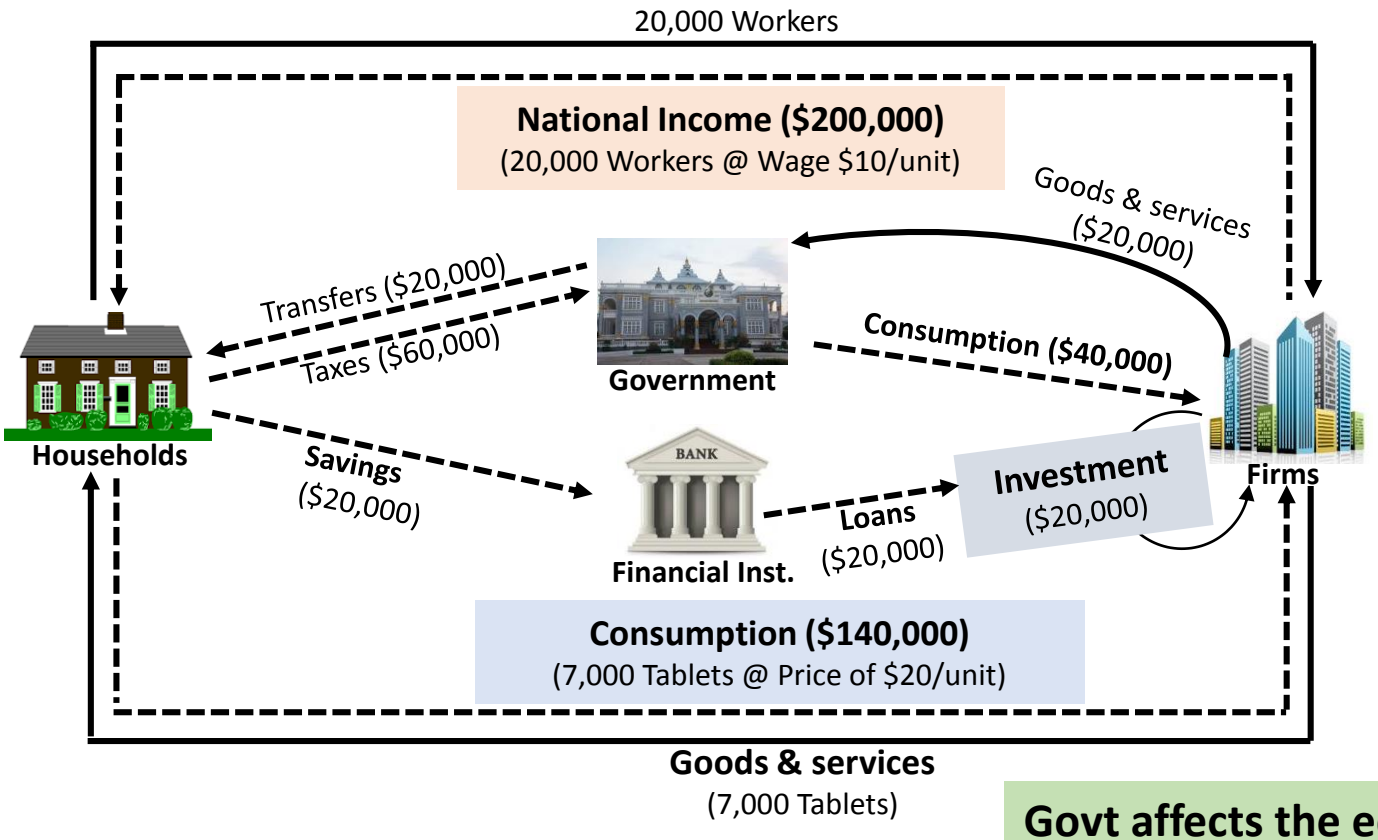
Circular flow of economic activity: Three-sector model



GDP = Cons.+Invt
= 180,000+20,000
= $200,000

What is the level of GDP if firms don't invest?
GDP = Cons.+Invt
= 180,000+0
= $180,000

Circular flow of economic activity: Four-sector model



GDP = Cons. + Priv. Invt + Govt Cons.
= 140,000+20,000+40,000
= $200,000

What is the level of N.GDP if Govt. consumption is $10,000?
GDP = Cons. + Priv. Invt + Govt Cons.
= 140,000+20,000+10,000
= $170,000

Govt saving = Taxes – Transfers – Govt Cons.
= 60,000 – 20,000 – 10,000
= $30,000

Govt affects the economy through taxes and public expenditure

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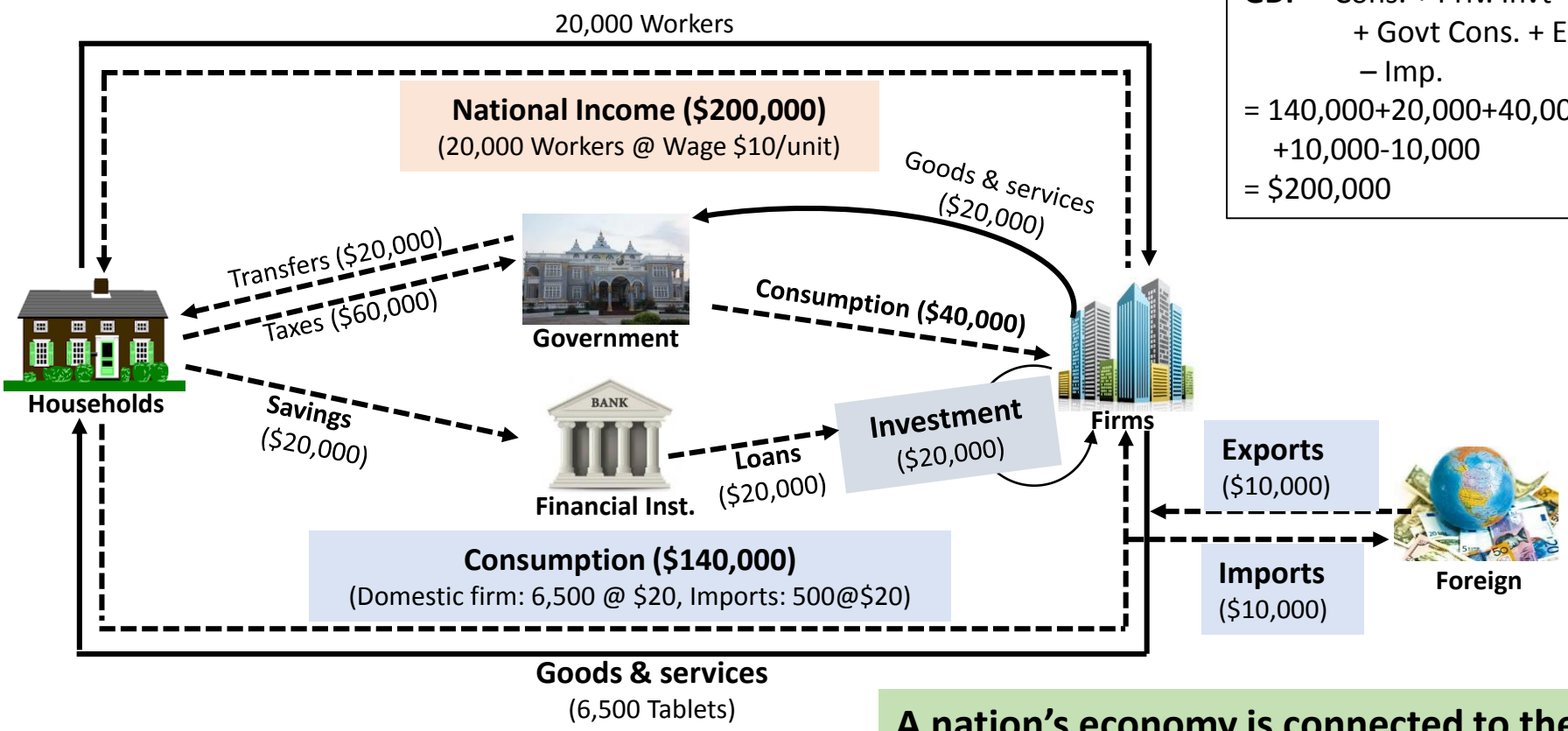
Circular flow of economic activity: Five-sector model

GDP = Cons. + Priv. Invt
+ Govt Cons. + Exp.
– Imp.
= 140,000+20,000+40,000
+10,000-10,000
= $200,000



A nation's economy is connected to the rest of the world through exports and imports

Measuring the size of the economy

- **Gross domestic product** (GDP) – the **market value** of the **final goods and services** produced within a **country** in a given **time period**.
- Three approaches for GDP computation:
  1. Expenditure approach
  2. Income approach
  3. Value-added approach

GDP: The Expenditure Approach

- The expenditure approach sums consumption (C), private investment (I), government expenditure (G), and net exports (NX).

$$\mathbf{GDP = C + I + G + (X - M)}$$

Item	Symbol	Explanation
Personal consumption	C	Household expenditure on goods and services produced in Laos and in the rest of the world
Gross private domestic investment	I	Firms' expenditure on capital equipment and buildings and households' expenditure on new homes
Government expenditure	G	Govt purchases of goods and services and capital expenditure
Net exports	NX	Net exports is equal to exports (X) minus imports (M)

GDP: The Expenditure Approach

No.	Item	Symbol	Laos		United States	
			Amount in 2014 (billion US$)	Percentage of GDP	Amount in 2010 (billion US$)	Percentage of GDP
1	Personal consumption	C	5.94	51.5	10,285	70.5
2	Gross private domestic investment	I	2.64	22.9	1,842	12.6
3	Govt. expenditure	G	3.52	30.6	2,991	20.5
4	Net exports	X - M	-0.57	-4.9	-539	-3.7
5	**Gross domestic product**	**GDP**	**11.53**	**100.0**	**14,579**	**100.0**

Source: Laos data was extracted from UNCTADStat. The US data was extracted from Parkin (2012) Macroeconomics Textbook.

Expenditure Approach:
Comparison of GDP components between Laos and US

Key message: **Public sector plays a more significant role in the Lao economy than in the US economy.**

- In Laos, Govt. expenditure makes up of 28% of GDP, while private inv. accounts for 21%.
- In the US, Govt. expenditure makes up of 19% of GDP, while private inv. accounts for 12%.

Fig.1a: Laos in 2014

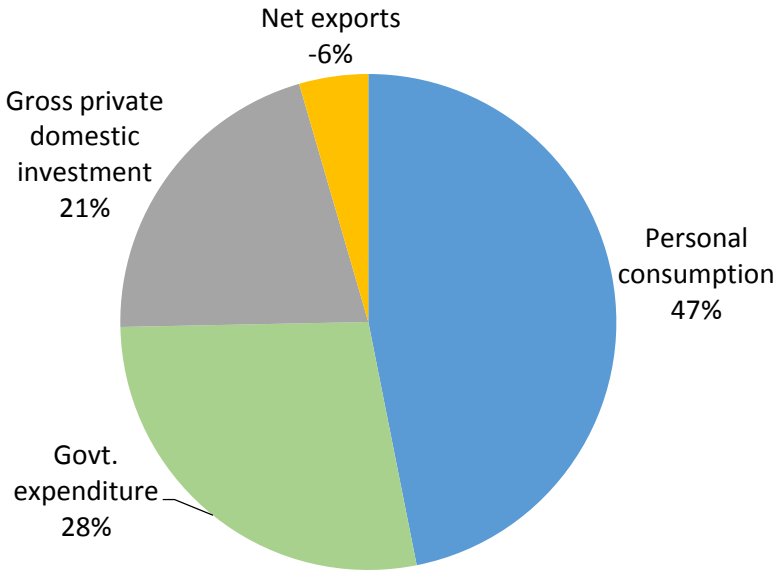
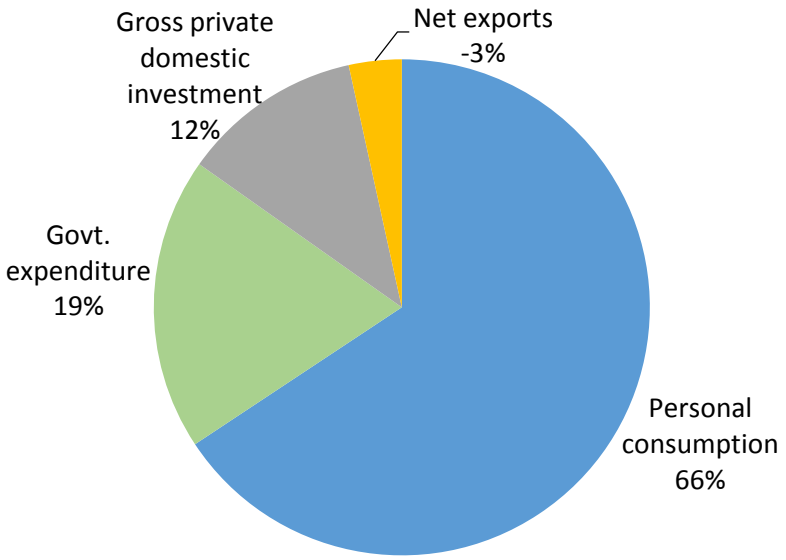


Fig.1b: United States in 2010



Source: Laos data was extracted from UNCTADStat. The US data was extracted from Parkin (2012) Macroeconomics Textbook.

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GDP: The Income Approach

- The income approach sums wages, interest, rent, and profit (plus indirect taxes less subsidies plus depreciation).

$$\mathbf{GDP = Wages + Interests + Rents + Profits}$$

Textbook term	National account term	Explanation
Wages	Compensation of employees	Payment for labour services, including wages and salaries
	Proprietors' income	Income earned by the owner-operator of a business (labour, use of capital & profit)
Interests	Net interest	The interest households receive on loans they make minus the interest households pay on their own borrowing
Rents	Rental income	Payment for the use of land and other rented resources
Profits	Corporate profits	Profits of corporation, some are paid to households (dividend) and retained by corporations

GDP: The Income Approach

No.	Item	Laos		United States	
		Amount in 2013 (billion US$)	Percentage of GDP	Amount in 2010 (billion US$)	Percentage of GDP
1	Compensation of employees	3.54	34.8	7,929	54.4
2	Proprietors' income + Rental income	1.09	10.7	1,349	9.3
3	Corporate profits + Net interest	2.93	28.7	2,134	14.6
4	***Net domestic income at factor cost (1+2+3)***	***7.56***	***74.2***	***11,412***	***78.3***
5	Indirect taxes *less* subsidies	-0.01	-0.1	1,127	7.7
6	***Net domestic income at market prices (4+5)***	***7.55***	***74.1***	***12,539***	***86.0***
7	Depreciation	0.97	9.5	1,860	12.8
8	**GDP (income approach)**	**8.52**	**83.6**	**14,399**	**98.8**
9	Statistical discrepancy (10-8)	1.67	16.4	180	1.2
10	**GDP (expenditure approach)**	**10.19**	**100.0**	**14,579**	**100.0**

Source: Laos data was extracted from Eora database, http://www.worldmrio.com/country/. The US data was extracted from Parkin (2012) Macroeconomics Textbook.

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Income Approach:
Comparison of GDP components between Laos and US

Key message: **Benefits of GDP growth are more widely shared in the US than in Laos.**

- In Laos, about 42% of income goes to employees, while 47% goes to entrepreneurs.
- In the US, about 55% of income goes to employees, while 24% goes to entrepreneurs.

Fig.1a: Laos in 2013

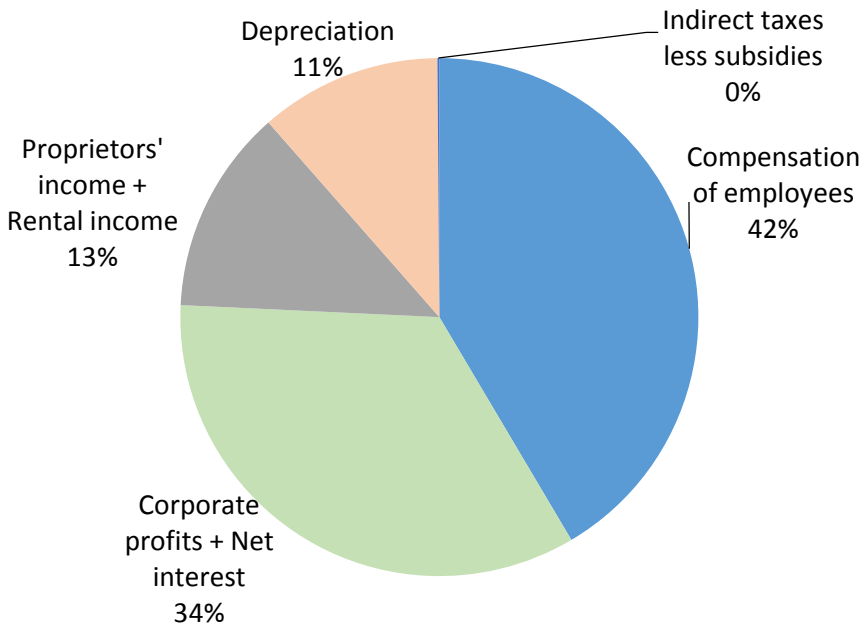
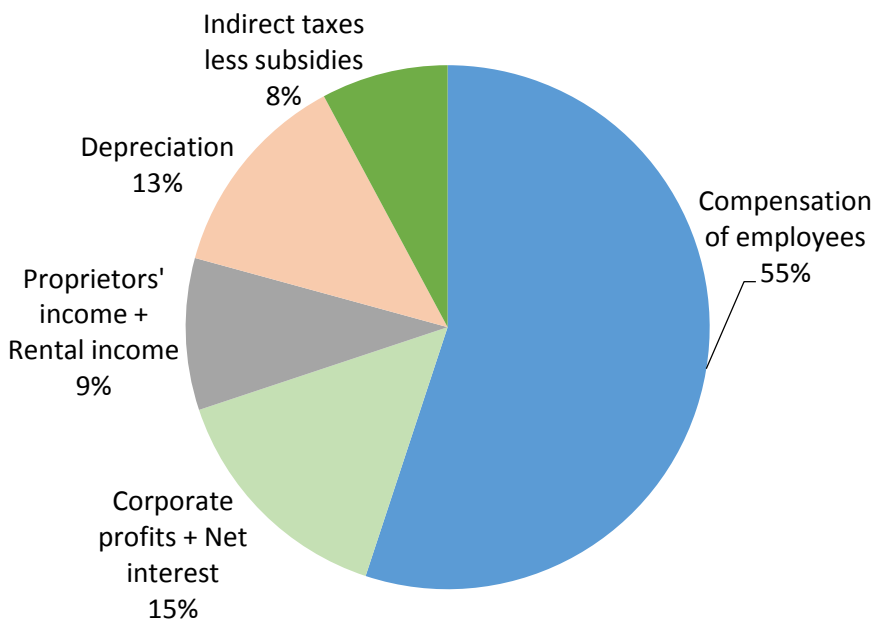


Fig.1b: United States in 2010



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GDP: The Value-added Approach

- The value-added approach sums the value added (VA) in each stage of production.

$$\text{GDP} = \sum \text{VA}$$

Example: Calculating GDP from bread production

	Production	Generated	Added
Farmer	harvest wheat	$100	$100
Miller	makes into flour	200	100
Baker	makes into bread	300	100
		$600	$300

GDP counts only the $ value of the final good

This is the same as the "value-added."

Value-added Approach:
Comparison of GDP components between Laos and US

Key message: **Agriculture sector is more important in the Lao economy than in the US economy.**

- In Laos, agriculture, industry and services sectors equally contribute to GDP.
- In the US, services sector dominates other sectors, accounting for about 80% of GDP.

Fig.1a: Laos

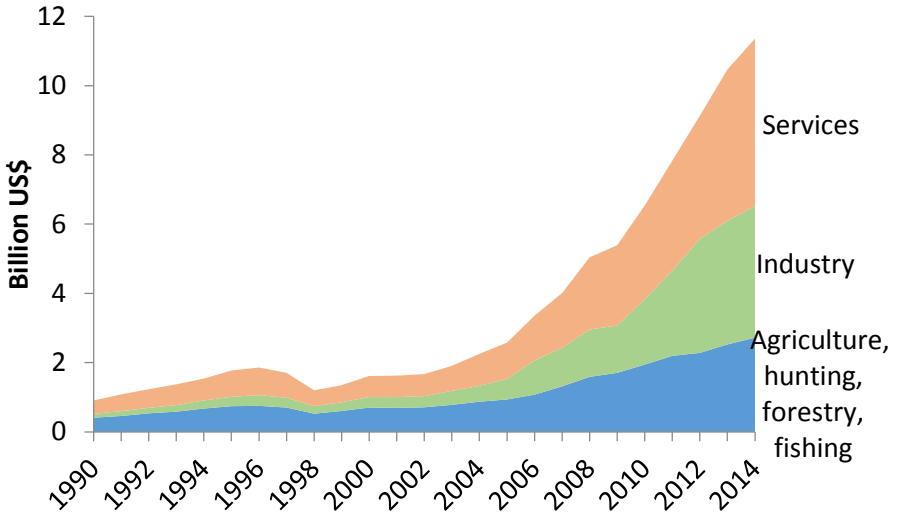
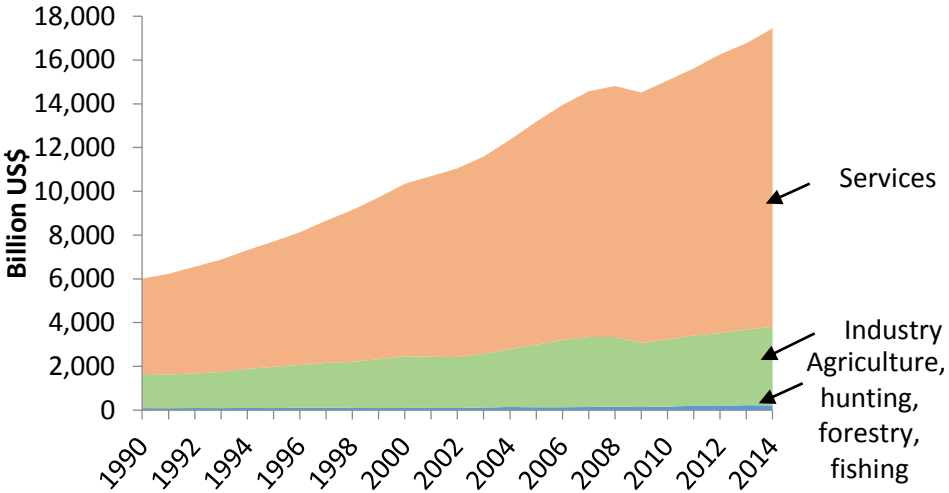


Fig.1b: United States



Source: Extracted from UNCTADStat.

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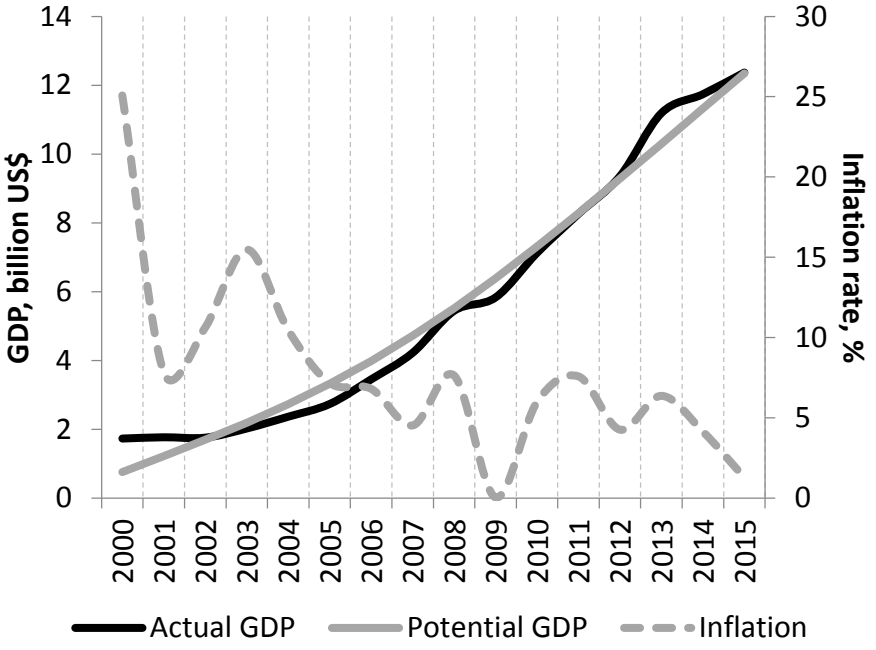
Economic Growth and Inflation Rate

1. Actual GDP > Potential GDP ⇨ Inflation↑

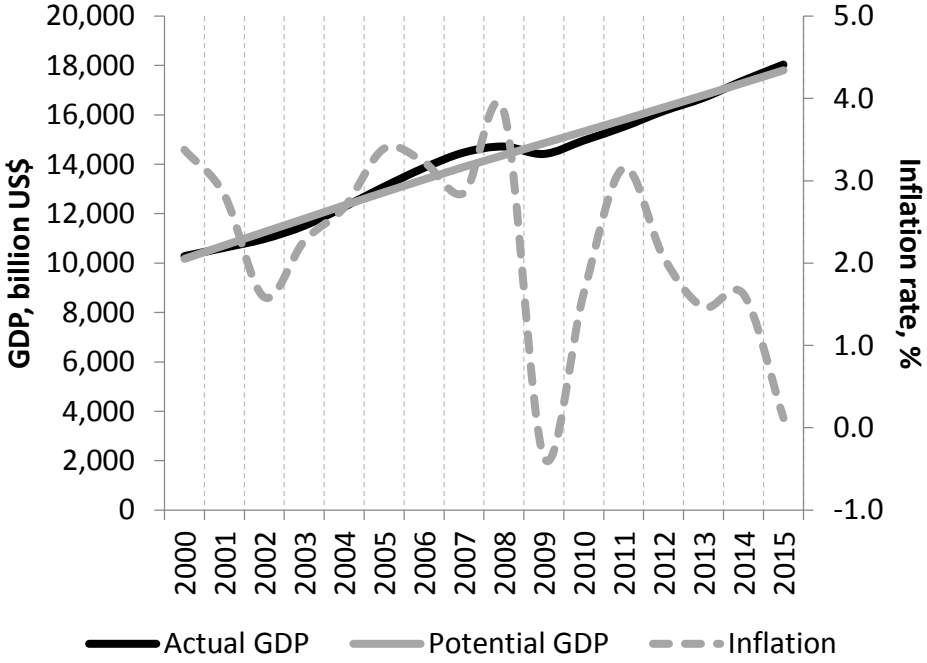
2. Actual GDP < Potential GDP ⇨ Inflation↓

Fluctuations of actual GDP and inflation in Laos and USA during 2000-2015

a. Laos



b. United States



Source: Calculated using data from World Bank's World Development Indicators.

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What is fiscal policy?

- Fiscal policy – Govt's decision about how much to tax and spend.
- Public revenue (R): Taxes (profits, incomes), non-taxes (dividends), grants.
- Public expenditure (G): Current expenditure (salaries, transfers, debt payment); Capital expenditure (roads, hospitals, schools).
- Fiscal surplus: $R > G$
- Fiscal deficit: $R < G$
- Fiscal deficit is financed by two sources: (1) domestic borrowings; (2) foreign borrowings

Impact of fiscal policy on the economy

- Tools of fiscal policy: Government expenditure (G) and Tax (T).
- Two types of fiscal policy (FP):
  1. Expansionary FP: **↑G** or **↓T** ⇨ **↑GDP**
  2. Contractionary FP: **↓G** or **↑T** ⇨ **↓ GDP**
- Expansionary FP is used when the economy is in recession. Recession occurs when GDP growth is negative for two consecutive quarters.
- Contractionary FP is used when the economy has high inflation.

Multiplier effects of fiscal policy on the economy

Equilibrium in goods market:

1. Income = Expenditure

$$GDP = C + I + G + NX \quad (1)$$

2. Consumption behaviour

Cons. depends on disposable income

$$C = a + b(GDP - T) \quad (2)$$

Substitute (2) into (1):

$\Leftrightarrow GDP = a + b(GDP - T) + I + G + NX$

$\Leftrightarrow GDP = a + bGDP - bT + I + G + NX$

$\Leftrightarrow GDP - bGDP = a - bT + I + G + NX$

$\Leftrightarrow (1 - b)GDP = a + I + G - bT + NX$

$$\Rightarrow GDP = \frac{1}{(1-b)}(a + I + G - bT + NX)$$

Multiplier effects

GDP = Gross domestic products
C = Consumption
I = Private investment
G = Government expenditure, including wages & salaries and capital expenditure.
NX = Net exports, exports – imports
a = Autonomous consumption
b = Income propensity to consume
GDP – T = Disposable income

Example:
Impact of fiscal policy on the Lao economy

Hypothetical data on the Lao economy in 2015: Billion US$

Variable	Value	Variable	Value
Private investment (I)	3.6	Taxes (T)	2
Govt expenditure (G)	2	Net exports (NX)	-3

Personal consumption (C) is characterised by: $C = 1.4 + 0.8(GDP - T)$

Questions:

1. Calculate GDP based on the expenditure approach.
2. What is the fiscal balance?
3. How much does the 10% reduction of Govt. expenditure affect Laos' GDP?

Example:
Impact of fiscal policy on the Lao economy

1. **Computing GDP based on expenditure approach**

$$GDP = C + I + G + NX$$

$$\Rightarrow GDP = \frac{1}{(1-b)}(a + I + G - bT + NX)$$

$$\Leftrightarrow GDP = \frac{1}{(1-0.8)}(1.4 + 3.6 + 2 - 0.8*2 + (-3))$$

$$\Leftrightarrow GDP = \frac{1}{0.2}(7 - 1.6 - 3) = \frac{2.4}{0.2}$$

$$\Rightarrow GDP = US\$12 \text{ billion}$$

2. **Fiscal balance = Taxes - Govt expenditure**
   = 2 – 2 = 0

Example:
Impact of fiscal policy on the Lao economy

3. ΔG = - 10%*2= - US$0.2 billion

$$GDP = \frac{1}{(1-b)}(a + I + G - bT + NX)$$

$$\Leftrightarrow \quad \frac{\partial GDP}{\partial G} = \frac{1}{(1-b)}$$

$$\Leftrightarrow \quad \Delta GDP = \frac{1}{(1-b)}\Delta G$$

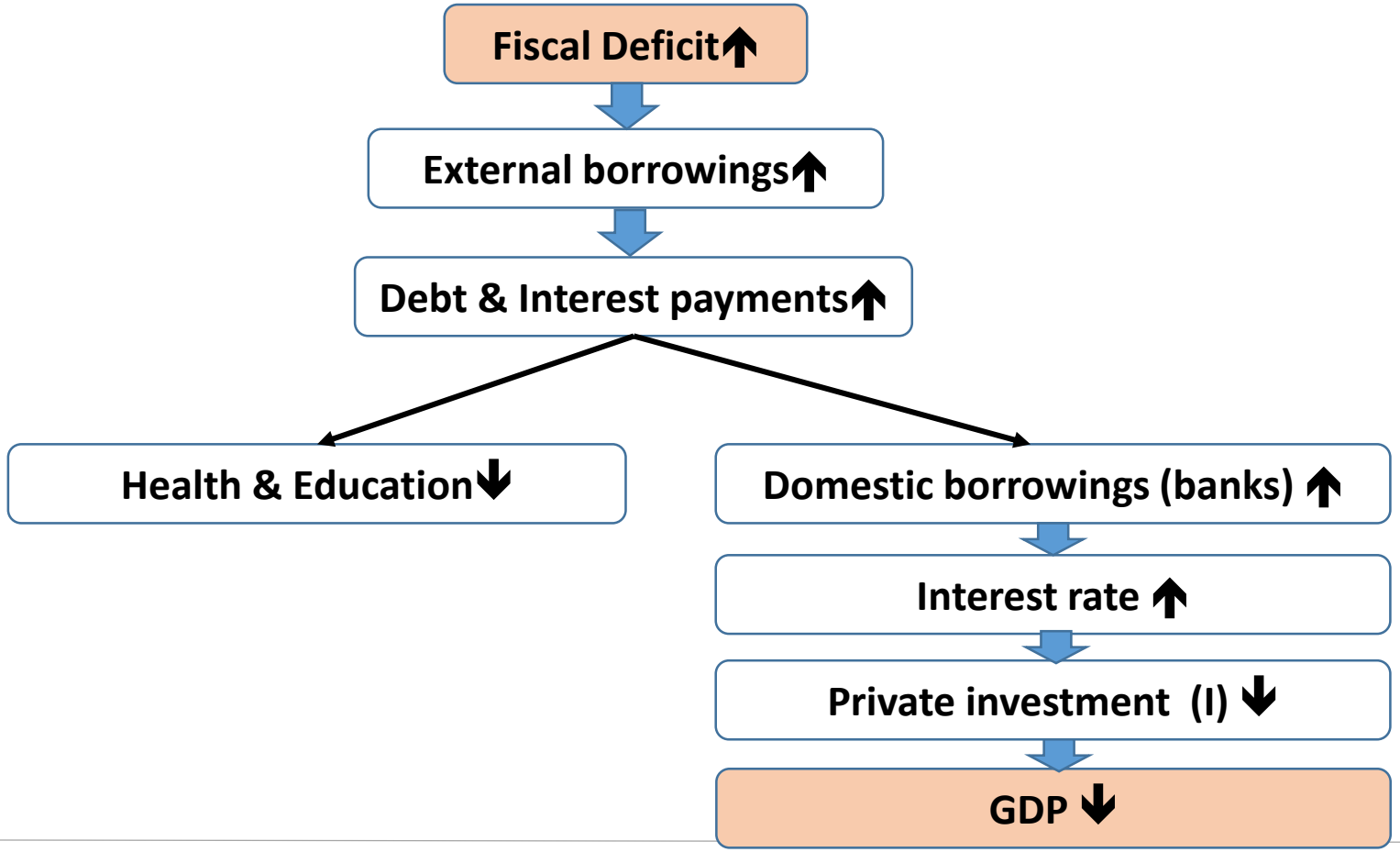
$$\Leftrightarrow \quad \Delta GDP = \frac{1}{(1-0.8)}(-0.2)$$

$$\Rightarrow \quad \mathbf{\Delta GDP = -US\$1 \text{ billion}}$$

New equilibrium output:

$$GDP^* = \overline{GDP} + \Delta GDP = 12 + (-1) = US\$11 \text{ billion}$$

IMF Article IV (2017): Resuming fiscal consolidation and reducing the debt-GDP ratio



Exercise: Calculating fiscal balance

1. Use Excel file ‘Public_Finance.xlsx’ to calculate fiscal balance and express it in percentage of GDP. Does Laos have fiscal surplus?
2. Create a chart of three indicators: (1) Public revenue; (2) Public expenditure; and (3) Fiscal balance.
   a) Use Bar Chart to present public revenue and expenditure in the left axis and Line Chart to present fiscal balance.
   b) Did the fiscal balance improve or deteriorate over the past few years?

Summary

- Economy is an interaction among households, businesses, government, and the rest of the world to produce goods and services under the condition of scarce resources.
- The size of an economy is measured by GDP, which is the market value of all the final goods and services produced in a country during a given period.
- GDP is computed by using expenditure approach, income approach, or value-added approach. Value-added approach is used in Laos.
- The expenditure approach sums consumption, investment, government expenditure, and net exports.

Summary

- The income approach sums wages, interest, rent, and profit (plus indirect taxes less subsidies plus depreciation).
- The value-added approach sums the value added in each stage of production.
- The expenditure approach of GDP is used to analyse the relationship between public expenditure and the economy.
- Financing fiscal deficit with borrowings worsens the economy when the government does not have sufficient financial resources to sustain the debts.