

Universität Siegen

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Exam "Aggregate Economic Accounting Systems"
Winter Semester 2016-17
(1st Exam Period)

Solution

Available time: 60 minutes

For your attention:

1. The exam is made up of 7 pages (including this cover page). Please check and see if the exam you are holding is **complete**.
2. For your answers, use the designated spaces. Should these not suffice, use the backside of the pages. Please do not use a **pencil**.
3. Additional materials you may use for the exam: a pocket calculator.
(Smart phones and mobile **phones** are **not** allowed!)
4. **ATTENTION:** The names for variables have the same meaning as in the lecture. Insofar as you also use the same symbols for the variables as we did in the lecture you will not have to define these any further.

Question	1	2	3	4	5	6	Sum	Mark
Points achievable	9	17	8	6	7	13	60	
Points achieved								

Problem 1: Some Essential Macroeconomic Indicators

There are three ways to measure GDP ("approaches" to GDP).

- a) Please name two of these "approaches". [2 points]

Solution: output approach, (1)
 income approach, (1)
 final-demand (or: final-expenditures) approach (1)

Maximum: 2 points!

- b) Please briefly explain one of these "approaches". [3 points]

Solution:

- output approach: gross values added

(1) (1) (1)

- income approach: compensation of employees (or: labour income),

(1.5)

gross profits

(0.5) (1)

- final demand approach: consumption, gross investment and net exports

(1) (0.5) (0.5) (0.5) (0.5)

Maximum: 3 points!

- c) Difference between GDP and NDP.

c₁ Which magnitude makes the difference between GDP and NDP? [2 points]

Solution: consumption of fixed capital (or: depreciation) (2)

c₂ For the "approach" explained in b), please precisely say which component has to be replaced by which other component in order to calculate NDP.

[2 points]

Solution:

- output approach: gross values added by net values added

(0.5) (0.5) (0.5) (0.5)

- income approach: gross profits by net profits

(0.5) (0.5) (0.5) (0.5)

- final demand approach: gross investment by net investment

(0.5) (0.5) (0.5) (0.5)

Exam WS 2016-17: "Aggregate Economic Accounting Systems" (1st Exam Period)**Problem 2: Relationship between Current Prices, Volume, and Deflator**

The table below shows the series for GDP growth at current prices and the GDP deflator growth rate in the case of France. GDP at current prices in 2005 was equal to 1 718 047 million euros.

	2005	2006	2007	2008	2009
(1) G: Growth rate GDP	1.83	2.47	2.29	-0.08	-3.15
(2) Growth Rate Deflator	1.91	2.14	2.59	2.54	0.72
(a) Gross Domestic Product (at current prices, M euros)	1 718 047				

We are interested in the GDP in volume in millions of "2005 euros"

a) For 2005, what is the GDP in volume? [2 points]

Solution: 1,718,047 (2)

b) For 2006, please calculate the GDP in volume in millions of "2005 euros":

b₁ Precisely [3 points]

Solution:

$$1,718,047 \frac{1 + \overset{(1)}{0.0247}}{1 + \underset{(1)}{0.0214}} = 1,723,598 \underset{(1)}{\quad}$$

b₂ Approximately [3 points]

$$\mathbf{Solution:} \quad 1,718,047 \left(1 + \underset{(0.5)}{0.0247} - \underset{(0.5)}{0.0214} \right) = 1,723,717 \underset{(1)}{\quad}$$

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c) Consider the following chronological series of volume indices (with period 0 as base year):

$$\frac{\sum q_{i0} p_{i0}}{\sum q_{i0} p_{i0}}, \quad \frac{\sum q_{i1} p_{i0}}{\sum q_{i0} p_{i0}}, \quad \frac{\sum q_{i2} p_{i0}}{\sum q_{i0} p_{i0}}, \quad \dots, \quad \frac{\sum q_{in} p_{i0}}{\sum q_{i0} p_{i0}}$$

c₁ Is this a Laspeyres or a Paasche index? Why? [4 points]

Solution: Laspeyres because it uses the prices of the base year

(2) (1) (1)

c₂ The above time series shows volume indices. We are interested in the volume series ("constant price series"), i. e. in absolute volumes rather than indices. For period 2, please define that volume and say how this can be obtained from the above series of volume indices. [5 points]

Solution:

Definition: $\sum q_{i2} p_{i0}$; obtained by multiplication of the index of period 2 by $\sum q_{i0} p_{i0}$

(2) (1) (1) (1)

Or:

$$\sum q_{i2} p_{i0} = \frac{\sum q_{i2} p_{i0}}{\sum q_{i0} p_{i0}} \sum q_{i0} p_{i0}$$

(2) (1.5) (1.5)

Problem 3: Illegal Economy and Underground Economy

a) What is the principle of treating illegal and underground production activities in GDP? [2 points]

Answer: included in GDP
(2)

b) Illegal activities.

b₁ Please give an example of an illegal activity to be included in GDP. [2 points]

Answer: drug production; or: trade in stolen goods (2)

b₂ How are illegal activities measured? [2 points]

Answer: estimated (2)

b₃ What is supposed to be the percentage share of illegal activities in GDP? [2 points]

Answer: less than one percent (2)

Problem 4: International Comparisons

We want to compare the development of the standard of living of Pakistan and Germany. We do so by using growth rates of GDP in value (i. e. at current prices). Please name two deficiencies of this approach and indicate how to correct them. [6 points]

Answer:

(i) differing inflation rates: use growth rates in volume
(1) (1) (1)

(ii) differing currencies: use growth rates in same currency
(1) (1) (1)

(i) diff. purch. power (or: price levels): use growth rates in vol. obtained by PPP rates
(1) (1) (1)

(ii) differing population growth: use growth rates per capita
(1) (1) (1)

Maximum: 6 points!

Problem 5: Capital Account

a) In brief, what does the capital account show? [2.5 points]

Answer: acquisitions and disposals of non-financial assets.

(0.5) (0.5) (1) (0.5)

b) We are given the following incomplete capital account. Please give the names of the missing positions (A) to (C), with (C) as the balancing item. [4.5 points]

Changes in assets	Changes in liabilities and net worth
Gross fixed capital formation	(A)
Consumption of fixed capital (-)	
Changes in inventories	
Acquisitions less disposals of valuables	
Acquisitions less disposals of non-produced assets	(B)
(C)	

(A):

(B):

(C):

Solution:

(A): Saving (or: net saving) (1)

(B): net capital transfers (or: cap. transf. received – cap. transf. payed)
(0.5) (0.5) (0.5)

(C): Net lending / net borrowing
(0.5) (0.5) (0.5) (0.5)

Problem 6: Gross Value Added

- a) For the data given in the following production account, please calculate gross value added at basic prices and at producers' prices. [6 points]

	Uses	Resources
Transactions and balancing items		
Output at basic prices		3 604
Intermediate consumption	1 883	
Taxes on products		141
Subsidies on products (-)		- 8
Gross value added		

Gross value added at basic prices =

Gross value added at producers' prices =

Answer:

$$\text{Gross value added at basic prices} = \underset{(0.5)}{3\,604} - \underset{(0.5)}{1\,883} = \underset{(1)}{1\,721}$$

$$\text{Gross value added at producers' prices} = \underset{(1)}{1\,721} + \underset{(1)}{(141 - 8)} = \underset{(1)}{1\,854}$$

- b) Why should we use value added instead of output as an indicator of production? [3 points]

Answer: value added is independent of the organization of production
 (1) (1) (1)

or: value added avoids double counting

- c) In which sense can we interpret value added as cost of production? [2 points]

Answer: value added = cost of labor (or: salaries) + cost of capital (or: profits)
 (1) (1)

- d) Is value added of the total economy a comprehensive indicator of national income? Please briefly explain your answer. [2 points]

Answer: no, because net income from abroad must be added (or: taken into account)
 (0.5) (0.5) (0.5) (0.5)