

# Universität Siegen

## Fakultät III – Wirtschaftswissenschaften Univ.-Prof. Dr. Jan Franke-Viebach

Exam "Aggregate Economic Accounting Systems"  
Winter Semester 2018-19  
(1<sup>st</sup> 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 non-programmable 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	Sum	Mark
Points achievable	12	20	15	7.5	5.5	60	
Points achieved							

**Problem 1: International Comparisons**

The following table shows data for Japan and the USA. It is designed to compare the welfare of the two countries over time.

<b>GDP per head in volume, at 2005 PPPs, USA = 100</b>											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Japan	70.5	70.7	70.2	70.0	69.6	68.8	68.8	69.6	69.7	68.4	70.4
USA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) Why does the table use volume data, not data at current prices? [3 points]

**Solution:** data at current prices include price changes;  
(1) (1)  
however, these do not indicate welfare changes (1)

or: only volume changes indicate welfare changes

b) Why are data expressed "per head"? [3 points]

**Solution:** changes of GDP can be caused by population changes;  
(1) (1)  
however, these do not indicate welfare changes (1)

or: only changes of GDP per capita indicate welfare changes

c) Why are data expressed "at PPPs" ? [4 points]

**Solution:** GDPs in volume based on national prices can be different  
simply because the national price levels are different;  
(1) (1) (1)  
however, these do not indicate different welfare levels (1)

or: differences in purchasing powers of national currencies must be eliminated

d) In the headline of the table, we read "USA = 100". What does that indicate? [2 points]

**Solution:** all data are relative to the data of the USA  
(1) (1)  
or: are expressed as percentages of the US data

**Problem 2: Calculation of Output and Value Added of General Government**

a) General government is an example of a non-market producer. What is the definition of a non-market producer? [5 points]

**Solution:** provides goods and services (1)  
  
at prices that cover less than half of the production costs  
(1) (1) (1) (1)  
  
( if: free of charge → (2) )

b) What is the problem of calculating output of a non-market producer? [3 points]

**Solution:** cannot be calculated by using sales (or: revenue) data (3)  
  
or: must be calculated using costs of production

c) The following are simplified data for a unit of general government:

- Civil servants' gross wages and salaries: 500
- employers' social contributions: 60
- purchases of materials: 80
- tax revenue: 400
- depreciation: 120.

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c<sub>1</sub> Calculate output, intermediate consumption and value added.

**Solution:** [6 points]

$$\text{Output} = \text{Sum of costs} = 500 + 60 + 80 + 120 = 760$$

(1)    (1)    (1)    (1)

$$\text{Value added} = \text{Output} - \text{intermediate consumption} = 760 - 80 = 680$$

(1)    (1)

c<sub>2</sub> Verify that the measure of output corresponds to the assumption that this administrative body is non-profit. [6 points]

**Solution:** Profit = value added – cost of labour – cost of capital

$$= 680 \quad - \quad 560 \quad - \quad 120$$

(1)                    (2)                    (2)

$$= 0$$

(1)

**Problem 3: Terms of Trade**

Consider the following tables showing French imports and exports of goods and services at current prices and in volume.

**Imports and exports at current prices**  
billions of euro

	2005	2006	2007	2008	2009	2010	2011	2012
Imports	463.8	504.7	535.9	561.7	475.1	538.3	597.6	602.6
Exports	452.9	485.9	506.7	521.0	440.7	494.5	538.3	557.6

**Imports and exports in volume**  
billions of euro

	2005	2006	2007	2008	2009	2010	2011	2012
Imports	463.8	487.2	514.0	518.7	468.7	510.5	536.7	531.0
Exports	452.9	476.3	487.5	485.9	427.1	467.6	492.8	504.6

- a) Using 2005 as the base period, please derive the export price index for 2006.  
Please show your calculations. [3 points]

**Solution:**

$$2006: 485.9 / 476.3 = 102.01$$

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

- b) Using 2005 as the base period, please derive the import price index for 2006.  
Please show your calculations. [3 points]

**Solution:**

$$2006: 504.7 / 487.2 = 103.60$$

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

- c) Using 2005 as the base period, please derive the terms of trade for 2006.  
Please show your calculations. [3 points]

**Solution:**

$$2006: 102.01 / 103.60 = 98.46$$

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

d) The French terms of trade in 2005 are 100. Suppose that in 2006, they are 95.50.  
(This is not the value calculated in c) ! )

d<sub>1</sub> Does the decline from 100 to 95.50 represent an improvement or a deterioration of French terms of trade? [1 point]

**Solution:** deterioration (1)

d<sub>2</sub> Please give an interpretation of the decline. [5 points]

**Solution:** for one unit of exports, France got 4.5% less imports

(1) (1) (1) (1) (1)

**Problem 4: Financial and Non-Financial Transactions**

Consider the following accounts.

**Accounts of household H**

H: Non-financial transactions	
Uses	Resources
Consumption	Salaries
Interest	Dividend
Balancing item	

**Accounts of corporation C**

C: Non-financial transactions	
Uses	Resources
Salaries	Output
Dividend	Interest
Balancing item	

H: Financial transactions	
Change of assets	Change of liabilities
Bank account	Loans
Shares	
	Balancing item

C: Financial transactions	
Change of assets	Change of liabilities
Bank account	Shares
Loans	
	Balancing item

a) What is the name of the balancing item of the non-financial accounts? [1.5 points]

**Answer:** net lending/net borrowing  
(1) (0.5)

b) What is the name of the balancing item of the financial accounts? [1.5 points]

**Answer:** net lending/net borrowing  
(1) (0.5)

c) In the financial account of any agent, there are basically two types of financial transactions.

c<sub>1</sub> Please name these two types of financial transactions. [2 points]

**Answer:** - counterparts to non-financial transactions

(0.5) (0.5)

- purely financial transactions

(0.5) (0.5)

c<sub>2</sub> In how far do they have different implications for the financial position of an agent? [2.5 points]

**Answer:**

Non-financial transactions affect net lending/net borrowing (2)

while purely financial transactions do not (0.5)

### Problem 5: Accumulation Accounts

a) What is the general purpose of the accumulation accounts? [1.5 points]

**Solution:** show flows that affect the balance sheets (or: that affect stocks)

(0.5) (0.5) (0.5)

b) Please name the four types of accumulation accounts. [4 points]

**Solution:** capital, financial, other changes in volume of assets, revaluation

(1) (1) (1) (1)