

Rough Estimation of Economic Impact of Present BSE-illness of Cows in Germany

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Remarks to the subject

In October and November 2000 the so-called **BSE-illness of cows** – a special insufficiency of the brains of the cows a well known illness from Great Britain since the late 80ths - was found as well with cows in the Federal Republic of Germany. Evidently, the public discussion of this event and (in Germany not expected) illness in daily newspapers, especially the possible transfer of this illness to human beings (so-called Creutzfeldt/Jacob-illness) caused a shock to German people and hence to the food market in Germany. As impact the consumers suddenly refused to buy meat of cows (and not only of these) and became suspicious to food produced by agricultural industry. This change within the behaviour of the consumers is starting point of this analysis. Aim of this analysis (of November 2000 already) was to illuminate and quantify the economic impact of such a change within the behaviour of German consumers on the national economy of Germany by means of official statistics and within a **rough estimation** undertaken by the department of statistics and econometrics of Berlin School of Economics. The results were provided to the government on federal level, firstly, and later to public. The analysis was made on base of the most **actual input/output-table of official statistics** of the Federal Republic of Germany (of the year 1995). The input/output approach is useful to estimate direct and indirect impact using the indicators *production output* and *employment* of the national economy.

This paper includes **two scenarios** (fictive model computations). **Scenario A** answers the (fictitious) question how the production output and the number of employment (in Germany) would change in 1995 if we assume that the final use of goods of commodity group *agriculture etc.* in 1995 is reduced by 30% (in total). **Scenario B** answers the (fictitious) question how the production output and the number of employment (in Germany) would change in 1995 if we assume that the final use of goods of commodity group *food, feed etc.* is reduced by 5% (in total). A limitation of these two assumptions to the agricultural good *beef* in scenario A and to the non-vegetarian feed *flour of animals* (which is supposed to cause this illness) in scenario B, for instance is not possible within a scope of only 12 commodity groups. Therefore the estimations of this analysis are called rough ones.

Furthermore, it should be mentioned that the use of structural statistical data (which describe aggregates) in order to describe changes of these aggregates is also limited, and this use needs at least the so-called *ceteris paribus* condition (for the behavior of these structural statistical data) as assumption. Both scenarios do not include substitution effects, they are (only) useful to estimate and illuminate the economic disadvantages. If such substitution effects are included (final use of fish and chicken etc. instead of beef in scenario A or final use of soja etc. instead of flour of animals in scenario B, for instance), the economic balance is quite different (and a more pleasant one). This conclusion holds in the case of the BSE-crises as well as for accidents with vehicles during traffic. Situations like a crises are starting point of political programmes („away from agriculture as an big industry“), usually they are followed by considerable investments (of several billions of German Mark) which influence the economic balance as well and sustainable. At present these parameters for such a final balance are not fixed, and they are not subject of this estimation. Finally note, the

premises „reduction of 30%“ (in scenario A) and „reduction 5%“ (in scenario B) can easily be adapted to different premises „reduction 10% (in scenario A) und „reduction 8%“ (in scenario B) by the reader itself, in this way that he divides the figures of scenario A by 30 and multiplies the results with 10, and that he divides the figures of scenario B by 5 and multiplies the results with 8. Using operations like these, the reader may describe special substitution effects within these scenarios as well, for instance the change of consumption of beef to consumption of fish. Both scenarios may be overlaid by a simple addition of corresponding figures. This is due to Leontief's approach using linear and homogeneous production functions.

Results of the approach

Result of scenario A is a (huge) reduction of the total production of the Federal Republic of Germany by about 15 Billion (10^9) DM and a reduction of the employment figure by nearly 150 thousand people. Besides a loss in commodity group agriculture, forestry etc. (nearly 120 thousand people) mainly the commodities of services are concerned (commerce etc. by more than 10 thousand people). The direct effects concerning direct advance deliveries into the commodity group agriculture etc. cause a loss of only 21 thousand employees on the labor market only, the indirect effects (in messages of November 2000 neglected or not focussed, the author supposes) are far above this number and therefore far more serious, not to mention the purely quantitative figures. **Result of scenario B** is a reduction of the total production of the Federal Republic of Germany of more than 17 Billion (10^9) DM and a reduction of the employment figure by about 94 thousand people. The most important losses on the labor market concern the commodity groups food, feed, etc., agriculture etc., and services of commerce etc. with under 40 thousand, over 25 thousand, and over 12 thousand people in total. The indirect effects are far predominantly. For detailed results look at the attached tables to scenarios A and B.

A further **conclusion** of these scenarios is: The premise, the reduction of the final use of commodities of agriculture etc. (caused by the BSE-illness) would be only 4,05 % (during one year) in **scenario A** has as impact that the total employment figure decreases by 20 thousand people (for one year), and has as impact that the total production decreases by about 2 Billion (10^9) DM. Vice versa the premise, the reduction of the final use of commodities of food, feed, etc. (caused by the BSE-illness) would be only 1,06 % in **scenario B** has as impact that the total employment figure decreases by 20 thousand people as well, and the total production decreases by about 3,7 Billion (10^9) DM. These low percentages of 4,05% and 1,06% do not hold under a critical evaluation of the present situation (in November 2000) of consumer's behaviour, even not in this case that we think of substitution effects, these percentages are far too low. **Ergo** a conclusion of these scenarios is: Messages in present newspapers (of November 2000) with indicate losses on the labor market of „over 10 thousand people“ are far underestimated. The real economic loss (measured by losses on the labor market) is evaluated as a far more higher one. As the BSE-illness is known nearly in all member states of the European Union, the intended reduction of the huge fraction of expenditures for agriculture of the European Union within the budget of this union will not turn to reality within the next years. Far more it can be expected that the necessary conversion of the agricultural sector of the European Union will lead to additional and considerable expenditures, also within the different member states. Last but not least: It seems very suspicious that not aspects of health (of concerned human beings) of this BSE-illness of cows forced actions of the German government (to protect the health of consumers) what should be normal expectation in a social state, but only heavy economic reactions of the final consumers and as impact impending losses for the society as whole.

Impact of BSE-illness**Federal Republic of Germany****Scenario A**

Premise	Reduction of final use of agricultural goods by 30% because of BSE-illness						
Impact	Indicator Unit Species	Production output Billion (10 ⁹) DM			Employment 1000 People		
		direct	indirect	total	direct	indirect	total
commodity group							
Agriculture, forestry, fish		- 0,2	- 9,0	- 9,2	- 2,9	- 114,8	- 117,7
Mining, stones and earths, energy, water		- 0,2	- 0,2	- 0,4	- 0,8	- 0,4	- 1,2
Petrol, chemical goods, glass, ceramics, manufactured stones and earths		- 0,4	- 0,2	- 0,6	- 1,4	- 0,7	- 2,1
Metals		- 0,1	- 0,1	- 0,2	- 0,3	- 0,5	- 0,8
Machines, vehicles, data processing, electrical engineering		- 0,2	- 0,1	- 0,3	- 0,7	- 0,6	- 1,3
Textile, clothes, leather and leather goods, goods of wood and paper, secondary raw materials etc.		- 0,0	- 0,2	- 0,2	- 0,2	- 0,5	- 0,7
Food, feed, beverages tobacco products		- 0,7	- 0,1	- 0,8	- 2,6	- 0,7	- 3,3
Building construction goods		- 0,1	- 0,1	- 0,2	- 0,5	- 0,7	- 1,2
Services of trade, traffic, message switching, restaurants		- 0,8	- 0,4	- 1,2	- 6,7	- 3,7	- 10,4
Services of banks and insurances, of housing, and other services of business		- 0,7	- 0,9	- 1,6	- 2,2	- 2,9	- 5,1
Services of health, of health of animals, of welfare facilities, of education and teaching, of waste disposal		- 0,2	- 0,1	- 0,3	- 2,3	- 0,9	- 3,2
Public services, services of defense, of social insurances, of churches, cultural services, of private households		- 0,1	- 0,1	- 0,2	- 0,3	- 0,7	- 1,0
All commodity groups		- 3,7	- 11,5	- 15,2	- 20,9	- 127,1	- 148,0

Source: Input/Output-table 1995 at producer prices, domestic production in billion (10⁹) DM, coefficients of the Input/Output-table 1995 at producer prices, domestic production, in: Statistisches Bundesamt (editor): Statistisches Jahrbuch 2000 für die Bundesrepublik Deutschland, p.656-659.
Note: The final use of goods of commodity group *agriculture, forestry, fish* is in total 29,3 billion DM in 1995. The commodity groups refer to the European system of accounts of 1995 (ESA 1995).
Execution: Department of Statistics and Econometrics, Berlin School of Economics, November 2000, Results rounded, negative figures show a decrease.

Impact of BSE-illness**Federal Republic of Germany****Scenario B**

Premise	Reduction of final use of goods of food, feed etc. by 5% because of BSE-illness						
Impact	Indicator Unit Species	Production output Billion (10 ⁹) DM			Employment 1000 People		
commodity group		direct	indirect	total	direct	indirect	total
Agriculture, forestry, fish		- 1,6	- 0,4	- 2,0	- 21,0	- 4,7	- 25,7
Mining, stones and earths, energy, water		- 0,1	- 0,3	- 0,4	- 0,5	- 0,6	- 1,1
Petrol, chemical goods, glass, ceramics, manufactured stones and earths		- 0,2	- 0,3	- 0,5	- 0,5	- 1,0	- 1,5
Metals		- 0,1	- 0,1	- 0,2	- 0,4	- 0,6	- 1,0
Maschines, vehicles, data processing, electrical engineering		- 0,1	- 0,1	- 0,2	- 0,2	- 0,7	- 0,9
Textile, clothes, leather and leather goods, goods of wood and paper, secondary raw materials		- 0,2	- 0,2	- 0,4	- 0,9	- 1,0	- 1,9
Food, feed, beverages, tobacco products		- 1,1	- 8,8	- 9,9	- 4,5	- 34,2	- 38,7
Building construction goods		- 0,0	- 0,2	- 0,2	- 0,3	- 0,9	- 1,2
Services of trade, traffic, message Switching, restaurants		- 0,8	- 0,6	- 1,4	- 6,7	- 5,8	- 12,5
Services of banks and insurances, of housing, and other services of business		- 0,8	- 1,2	- 2,0	- 2,4	- 3,9	- 6,3
Services of health, of health of animals, of welfare facilities, of education and teaching, of waste disposal		- 0,1	- 0,1	- 0,2	- 0,5	- 1,5	- 2,0
Public services, services of defense, of social insurances, of churches, cultural services, of private households		- 0,1	- 0,1	- 0,2	- 0,4	- 0,8	- 1,2
All commodity groups		- 5,2	- 12,4	- 17,6	- 38,3	- 55,7	- 94,0

Source: Input/Output-table 1995 at producer prices, domestic production in billion (10⁹) DM, coefficients of the Input/Output-table 1995 at producer prices, domestic production, in: Statistisches Bundesamt (editor): Statistisches Jahrbuch 2000 für die Bundesrepublik Deutschland, p.656-659. Note: The final use of goods of commodity group *Food, feed, etc.* is in total 167,6 billion DM in 1995. The commodity groups refer to the European system of accounts of 1995 (ESA 1995). Execution: Department of Statistics and Econometrics, Berlin School of Economics, November 2000, Results rounded, negative figures show a decrease.