Aus dem Institut für Betriebswirtschaft, Agrarstruktur und Ländliche Räume

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International comparison of the margin between farmer and consumer price of dairy products

Manuskript, zu finden in www.fal.de

Braunschweig
Bundesforschungsanstalt für Landwirtschaft (FAL)
2001

Also available at:
http://www.ifcnnetwork.org/Downloads/dairychain01.pdf

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International Farm Comparison Network

International Comparison of the Margin between Farmer and Consumer price for Dairy Products

IFCN working paper 1/2001

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1. Summary of the results

1.1 Introduction

Due to the results on costs of milk production produced by the **IFCN** we are able to compare the **dairy sector on farm level world wide**.

This study shall evaluate the **dairy chain** from the **farmer to the consumer** in different countries. Especially 2 questions shall be answered:

1. What are the **consumer prices** for dairy products in different countries?
2. What are in the **margins** between farmers and consumers in each country (margins of dairy processors, logistic and retails companies) and how much do they differ from country to country?

We are aware about the **complexity of the subject**. Therefore the study shall be used as a first step to develop and evaluate useful methods, and its result shall be seen as a first estimation.

The **following countries** have been chosen:

Western Europe:	Germany, UK and Sweden
North America:	Canada, USA (Wisconsin, California) and Mexico
Eastern Europe:	Hungary and Poland
South America:	Argentina and Chile

In this study we have chosen the **products** milk and butter. Other products like for example cheese would also be very interesting to look at but due to methodological problems in the valuation of the raw material we have focused on easy to quantify products like fresh milk and butter.

What has been done?

In this study product prices in bigger **supermarkets** (> 500m^2) have been collected. Special focus was given the USA and Germany (ca.10 supermarkets). The results for the other countries are based on ca. 3 supermarkets

Due to a huge **variety** especially in **milk products** (packing, volume, fat content) a cluster has be selected to fulfil the requirements of comparability between countries and representativity of the national consumer behaviour.

To **estimate the margin** for each dairy product the raw material value has to be estimated. First the raw material input (g fat, g protein) in the products was quantified using the product descriptions. The fat/protein values are estimated by using the fat and protein prices from the adjustment figures of the dairy factories.

1.2 Consumer prices milk and butter

Milk:

Consumer prices for milk differ from 0,8 to 3,2 DM per litre. Four price levels measured in DM/ litre can be described:

Level **1 DM**	Eastern Europe, Chile and Germany
Level **1,5 DM**	Sweden, UK, Mexico and Argentina
Level **2,3 DM**	Canada and USA, area Wisconsin
Level **>3,5 DM**	USA – California

Farmers prices differ 0,3 DM/ kg between countries while consumer prices differ 2,5 DM/ litre. Therefore differences in raw material price can explain **max 10% of the consumer price difference**.

Butter:

A similar picture like shown for milk prices was found for butter. Only in the following countries differences where found:

a) **Poland** with extremely low prices seems to be an exemption that needs a more details analysis.

b) Butter prices in **Canada** are on the level of the EU countries and much lower than in the US.

c) Butter prices in **Mexico** seem to be a lot higher than in the EU countries and in the USA (Wisconsin area).

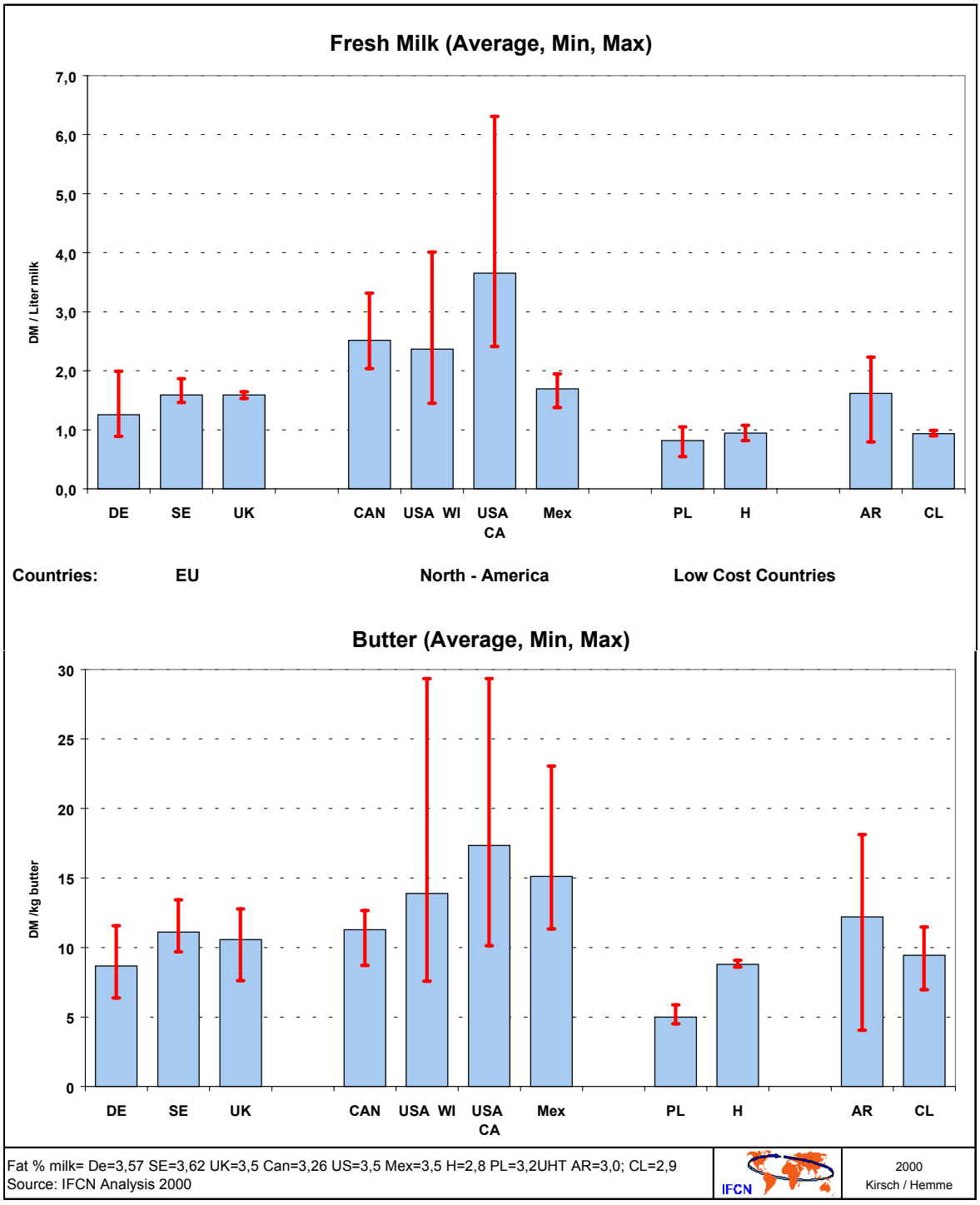
d) The differences in butter prices between **Chile and Argentina** are a lot lower than for the milk prices.

e) Compared to milk the % prices differences for butter between the countries are lower. The butter prices range between 9 – 17 DM per kg (factor 2). For fresh milk the prices range from 0,8 – 3,2 (factor 4).

Prices variations in the countries

It should be mentioned that in the different countries not the same number of supermarkets have been used to collect the database. A certain focus can be made on Germany and the USA where a similar number of observations have been done. It seemed to be that “high price countries” have higher variations measured in DM/ kg than “low price countries”.

Fig. 1: Consumer Prices for Milk and Butter



Fat % milk= De=3,57 SE=3,62 UK=3,5 Can=3,26 US=3,5 Mex=3,5 H=2,8 PL=3,2UHT AR=3,0; CL=2,9
Source: IFCN Analysis 2000

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1.3 Margins between Farmer and Consumer

Milk:

The margins follow basically the producer price differences and range between 0,5 – 3 DM / kg milk. Four margin levels (DM/litre) can described:

Level **0,5 DM**	Eastern Europe, Chile and Germany
Level **1 DM**	Sweden, UK, Mexico and Argentina
Level **1,5 DM**	Canada and USA Wisconsin area
Level **3 DM**	USA – California

An **unbalanced relation** of **consumer vs. farmers prices** are observed in the USA, Argentina and to a smaller extend also in Canada. That means in comparision to other countries producer prices seem to be very low.

Conclusion: Tremendous differences (factor 6 from low to high) in the chain for the processing, transport and retail business are found. Besides different VAT systems for food these differences must be a reason of either higher/lower costs or higher/ lower profits in the different companies.

Butter:

The following differences compared to the margins for milk was found:

a) Margins in **Poland** and **Canada** are nearly zero. It must be questioned how the processor, retailer and logistic company cover their costs.

b) Margins in the **UK** are lot higher than in Sweden. This can be explained by the low valuation of fat from the dairy companies.

c) Besides USA, Argentina, an unbalanced relation of consumer vs. farmers prices are observed in **UK** and also in **Mexico**.

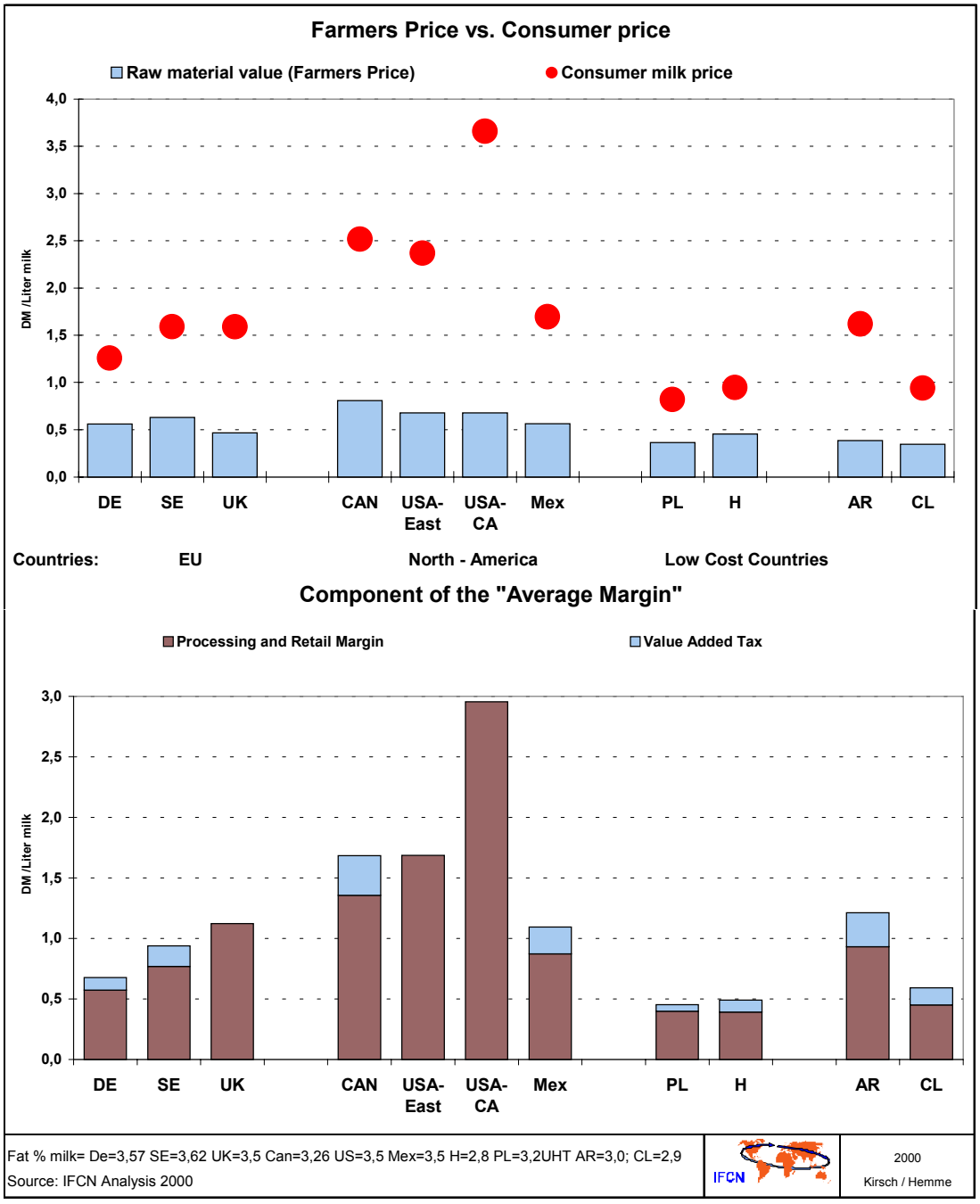
Variation of the margins:

The margins both for milk and butter are sometimes double than the average. Especially for butter the margin get down to zero (Germany, Canada, USA-WI, Hungary and Argentina).

Farmers share on consumer prices:

Liquid milk :	20 – 50% (low)
Butter :	40 - 80% (high)

Fig. 2: Fresh Milk – Comparison of Margins in DM/kg



Fat % milk= De=3,57 SE=3,62 UK=3,5 Can=3,26 US=3,5 Mex=3,5 H=2,8 PL=3,2UHT AR=3,0; CL=2,9

Source: IFCN Analysis 2000

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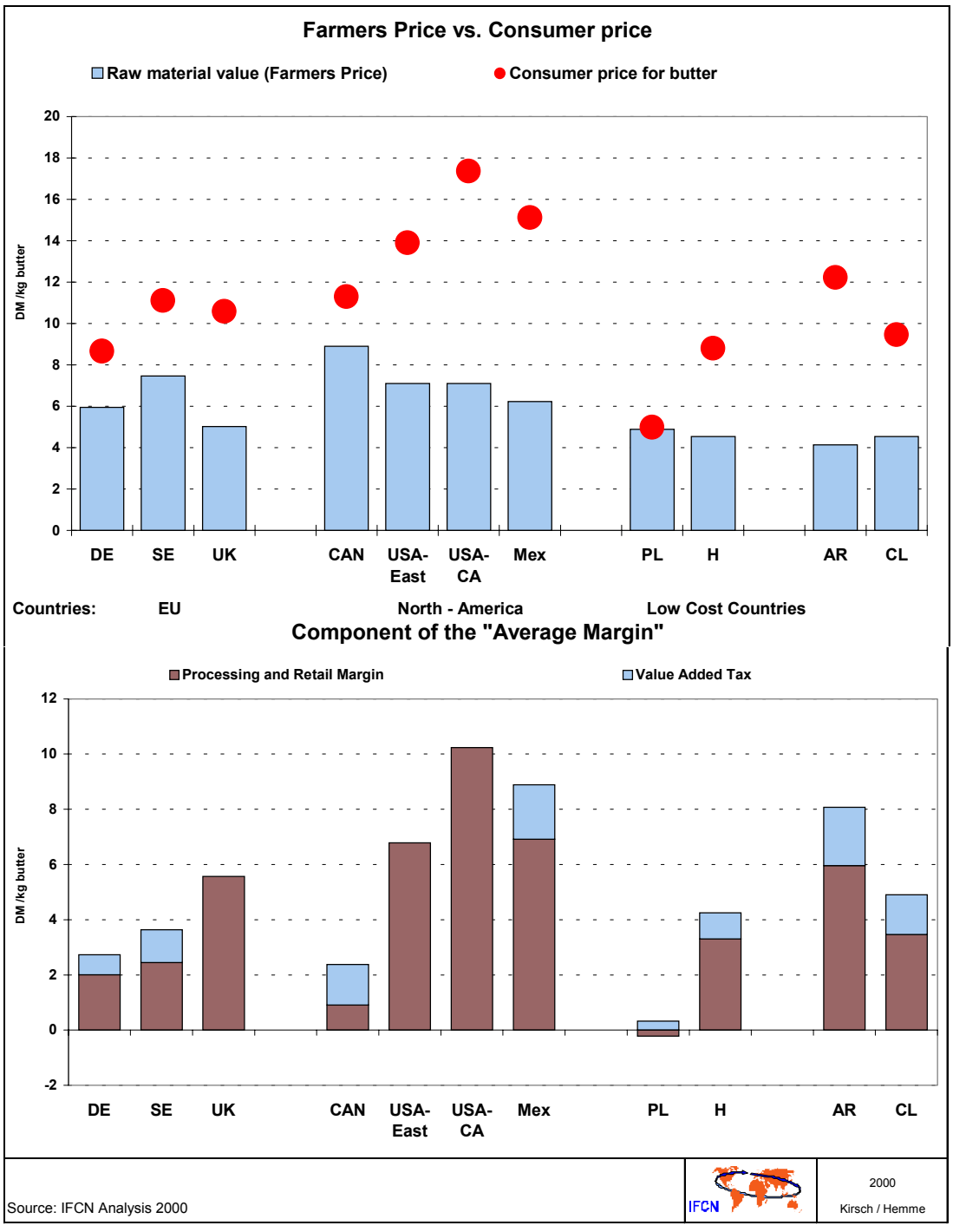
Fig. 3: Butter – Comparison of Margins in DM/kg



Source: IFCN Analysis 2000

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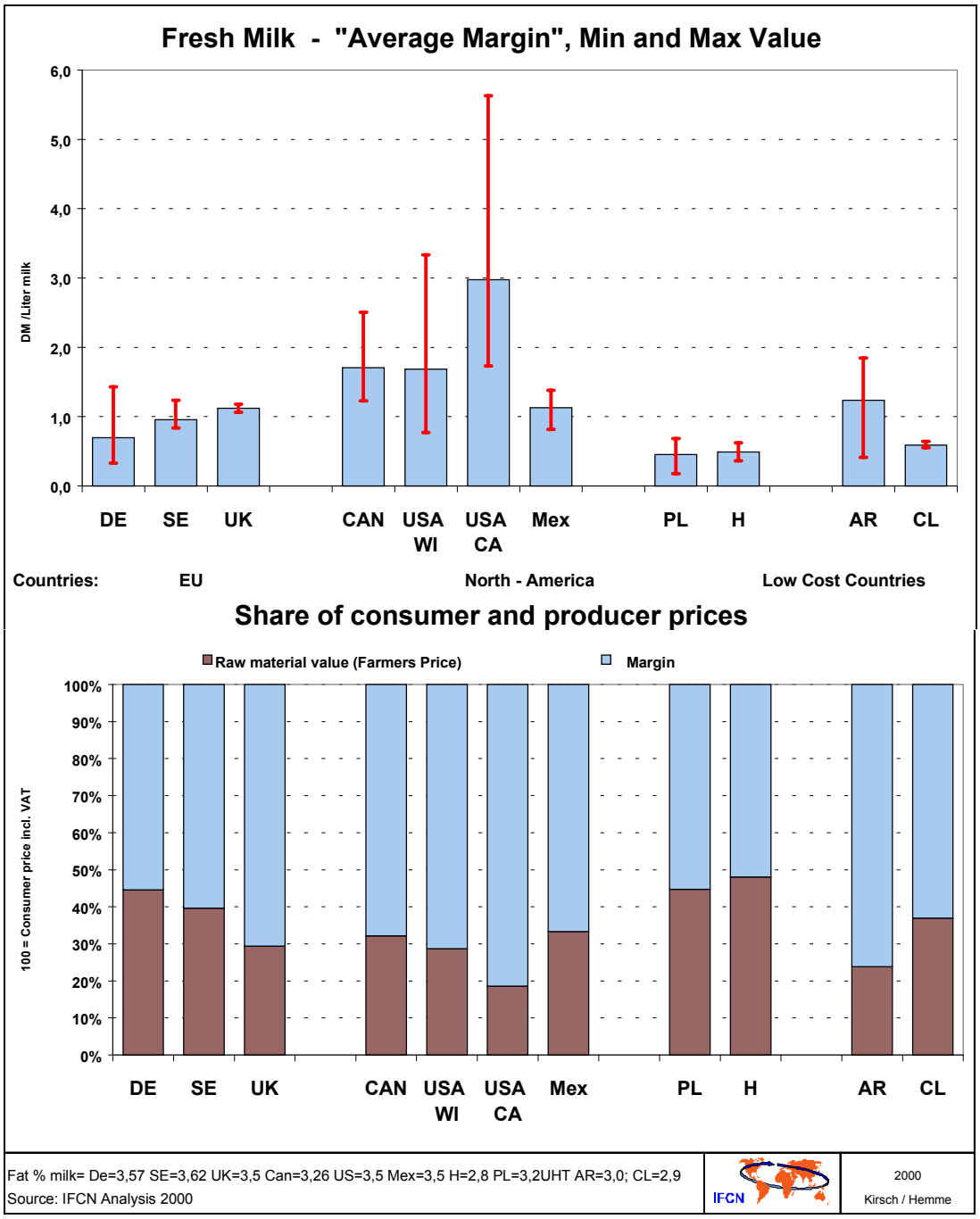
Fig. 4: Milk – Comparison of Margins - Min/max and %



Fat % milk= De=3,57 SE=3,62 UK=3,5 Can=3,26 US=3,5 Mex=3,5 H=2,8 PL=3,2UHT AR=3,0; CL=2,9
Source: IFCN Analysis 2000

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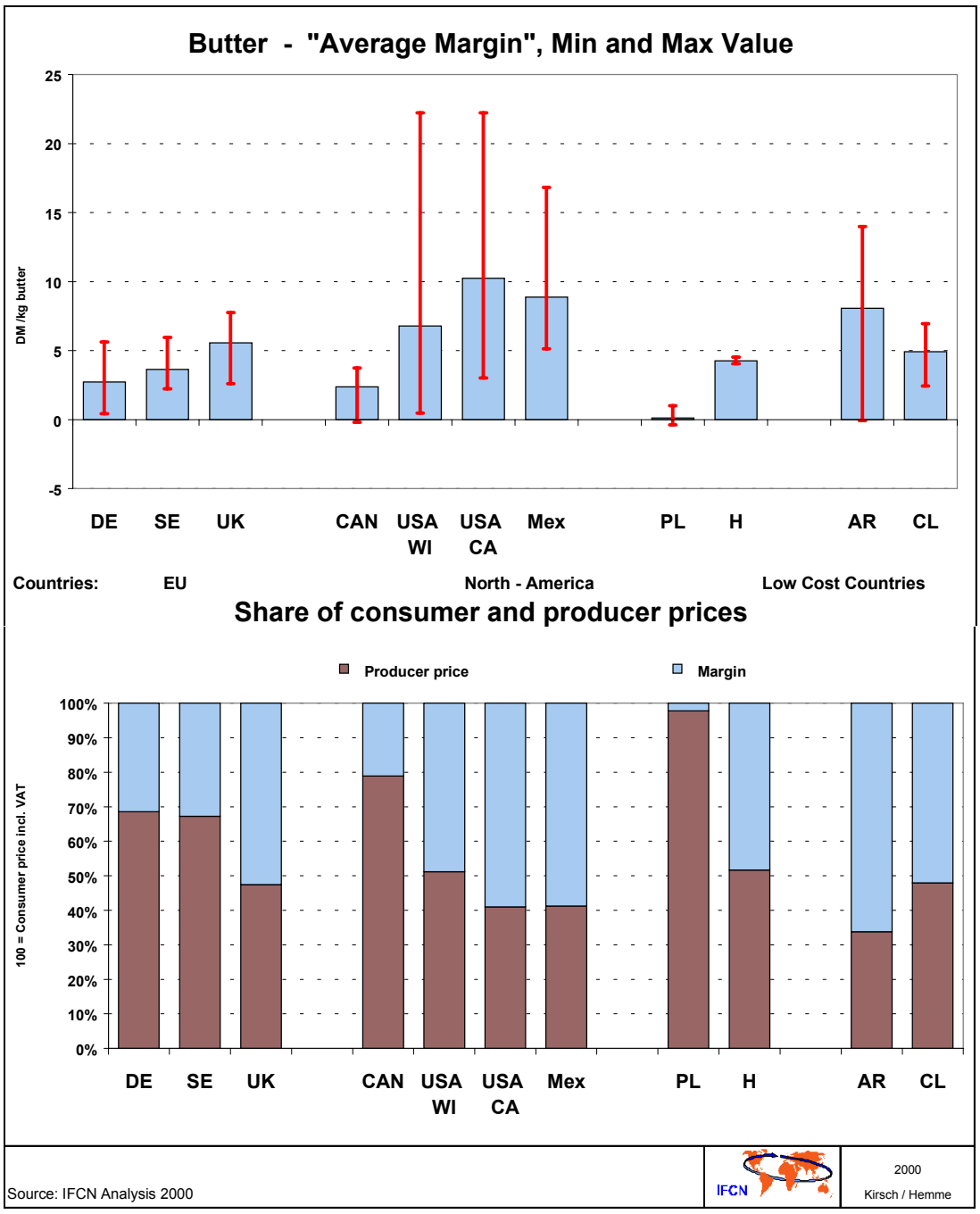
Fig. 5: Butter – Comparison of Margins - Min/max and %



Source: IFCN Analysis 2000

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2. Methodological issues

2.1 Producer price

Estimation of the price: Price excl. VAT observed in the period (month) when the consumer prices are collected. Base: National statistics, experts in the countries.

Comparable milk prices: Milk prices are adjusted to price for 3,5% fat and 3,4 % protein using the adjustment factors for fat and protein from the dairy factory.

2.2 Raw material valuation

Raw material price: The value for fat and protein in g are estimated using the fat and protein factors used by the dairy factory (g fat = X DM, g protein = Y DM). The residual value calculated (milk prices paid - g fat * X DM- g protein * Y DM) is added to the fat and protein share in relation to the valuation fat/protein.

Raw material value: Fat and protein content * fat and protein values calculated.

Special issue: It should be mentioned that the impact of the policy federal milk marketing orders in the USA are not deducted in the calculation.

2.3 Consumer prices collection

Data collection in supermarkets: In each country bigger supermarkets with more than 500 m^2 have been choosen

Products selection: All products for milk and butter have been collected regardless the packing, size, contents, special things like ecological milk

2.4 Cluster description to compare consumer prices

Milk:	Type of milk	Fresh milk (exemption Poland because only UHT)
	Volume	0,95 - 2L
	Fat content	2,6 - 3,8%
	Packing	plastic, tetra, tube, glass
	Supermarket	500 -10000m^2
Butter:	Type of butter	Standard
	Fat content	78 - 85%
	Volume	0,2 - 0,5 kg
	Packing	paper, cardboard, plastic
	Supermarket	500 -10000m^2

Organic milk and butter products are not included in the clusters

3. Annex

3.1 Supermarkets - no. of observations

Country		DE	SE	UK	CAN	US- WI	US- CA	Mex	PL	H	AR	CL
Currency		DM	skr	pound	Can$	US$	US$	Peso	zl	huf	Peso	Peso
Period		Aug 00	Mai 00	Apr 00	Sep 00	Sep 00	Sep 00	Okt 00	Nov 00	Okt 00	Nov 00	Dez 00
Supermarkets	no.	11	3	1	3	9	4	6	2	3	3	3
500-999m2	no.	9	1	1	3	2		3	1	3	1	
1000-5000m2	no.	1	2			3	3		1		1	3
5001-10000m2	no.	1				4	1	3			1	

Details of the data collection

	Citty / Region	Name of supermarkets
Germany	Braunschweig	Edeka, Real, Plus, Spar, Görge, Metro, Aldi, Rewe, Penny
Sweden	Stockholm	ICA, Maxi
UK	Nothern Ireland	Tesco
Canada	Guelph	Zehrs, No frills, Basic foods
USA WI	Area Wisconsin	No frills, Karns, Sunset food, Sentry food, Cub food, Jewel , Woodmark, Giant
USA CA	Californien	Albertsons, Ralphs, safeway
Mexico	North-Mexiko	Aramburo, CCC, Alsuper ninos heroes, Soriana, Issstestiendas
Poland	Stettin	King Cross-Geant, Netto
Hungary	Kaposvar	Tesco, Csenege Julius Meinl, Billa
Argentina	Buenos Aires	Coto, Carrefour, Jumbo
Chile	Osorno	Santa Isabel, Bigger, Las Brisas

Source: Own data collection together with IFCN partners

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3.2 Data collection and exchange rates

Country	Month of data collection	Exchange rate used*
Germany	Aug 2000	1
Sweden	Mai 2000	4,230
UK	Apr 2000	0,310
Canada	Sep 2000	0,661
USA - WI	Sep 2000	0,434
USA - CA	Okt 2000	0,434
Mexico	Nov 2000	4,348
Poland	Nov 2000	2,000
Hungary	Okt 2000	134,6
Argentina	Nov 2000	0,439
Chile	Jan 2001	264,8

Source: National statictics, www.oanda.com; * nat. currency per 1 DM

3.3 Milk - no. of observations

		DE	SE	UK	CAN	US- WI	US- CA	Mex	PL	H	AR	CL
Products Sum	no.	**48**	**21**	**5**	**45**	**216**	**150**	**68**	**17**	**27**	**127**	**21**
500-999m2	no.	32	4	5	45	43		23	5	27	39	
1000-5000m2	no.	3	17			83	101		12		47	21
5001-10000m2	no.	13				90	49	45			41	
Size of packages		**DE**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**Mex**	**PL**	**H**	**AR**	**CL**
0,2 - 0,5L	no.	1				14	10			1		
0,9 - 1L	no.	47	17	3	23	62	33	39	17	24	127	21
1,5L	no.		4	1						2		
1,9 - 2L	no.			1	20	88	66	24				
3L	no.											
3,8 - 4L	no.				2	52	41	5				
Fat content		**DE**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**Mex**	**PL**	**H**	**AR**	**CL**
0 - 1%	no.		5	1	24	115	72		6	1	4	1
1,4 - 1,6%	no.	16	8	2						14	62	1
2%	no.				14	61	45	10	6			
2,6 - 3,2%	no.	1			2				5	12	57	19
3,3 - 3,8%	no.	31	8	2	5	40	33	58			4	
Packing format		**DE**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**Mex**	**PL**	**H**	**AR**	**CL**
plastic-box	no.					114	42	26	2	2	6	
tetra pack	no.	35	21	5	43	99	108	42	15	22	92	14
plastic-tube	no.	3			2						29	7
glas	no.	10				3				3		
UHT/Fresh milk	no.	**DE**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**Mex**	**PL**	**H**	**AR**	**CL**
fresh	no.	35	21	5	45	216	150	37	2	24	60	6
UHT	no.	13						31	15	3	67	15

Source: Own data collection together with IFCN partners

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3.4 Milk – Prices in different clusters

Average prices per liter

		DE	SE	UK	CAN	US- WI	US- CA	Mex	PL	H	AR	CL
Average price	DM/l	**1,2**	**1,6**	**1,5**	**2,5**	**2,6**	**3,2**	**1,8**	**0,8**	**1,0**	**1,8**	**1,3**
Size of the supermarkets												
500-999m2	DM/l	1,2	1,5	1,5	2,5	2,2		1,6	0,7	1,0	1,8	
1000-5000m2	DM/l	1,1	1,6			2,6	3,2		0,9		1,8	1,3
5001-10000m2	DM/l	1,2				2,7	3,3	1,8			1,9	
Size of packages		**D**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**MEX**	**PL**	**H**	**AR**	**CL**
0,24 - 0,5L	DM/l	1,8				3,1	3,9			1,3		
0,95 - 1L	DM/l	1,2	1,6	1,6	2,8	3,2	3,9	1,8	0,8	1,0	1,8	1,3
1,5L	DM/l		1,5	1,2						0,9		
1,89 - 2L	DM/l			1,5	2,3	2,7	3,5	1,6				
3L	DM/l											
3,79 - 4L	DM/l				1,3	1,5	2,2	1,8				
Fat content		**D**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**MEX**	**PL**	**H**	**AR**	**CL**
0 - 1%	DM/l		1,6	1,6	2,5	2,6	3,2		0,8	1,0	1,8	1,7
1,4 - 1,6%	DM/l	1,2	1,5	1,4						1,0	1,9	
2%	DM/l				2,5	2,7	3,4	1,9	0,8			1,7
2,6 - 3,2%	DM/l	1,0			2,2				0,8	1,0		1,3
3,3 - 3,8%	DM/l	1,2	1,6	1,6	2,6	2,2	3,2	1,7			1,8	
Packing format		**D**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**MEX**	**PL**	**H**	**AR**	**CL**
plastic-box	DM/l					1,9	2,4	1,8	0,6	0,8	2,1	
tetra pack	DM/l	1,1	1,6	1,5	2,6	3,4	3,6	1,7	0,8	1,0	2,0	1,5
plastic-tube	DM/l	1,0			1,3						1,4	1,0
glass	DM/l	1,7				3,2				1,1		
UHT/Fresh milk		**D**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**MEX**	**PL**	**H**	**AR**	**CL**
fresh	DM/l	1,3	1,6	1,5	2,5	2,6	3,2	1,7	0,6	1,0	1,6	0,9
UHT	DM/l	1,0						1,8	0,8	1,1	2,0	1,5

Source: Own data collection together with IFCN partners

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3.5 Butter - no. of observations

		D	SE	UK	CAN	US-East	US-CA	MEX	PL	H	AR	CL
Products Sum	no.	**50**	**8**	**7**	**12**	**48**	**16**	**9**	**7**	**11**	**51**	**20**
500-999m2	no.	29	3	7	12	7		1	3	11	18	
1000-5000m2	no.	7	5			16	8		4		16	20
5001-10000m2	no.	14				25	8	8			17	
Size of packages		**D**	**SE**	**UK**	**CAN**	**US-East**	**US-CA**	**MEX**	**PL**	**H**	**AR**	**CL**
0,090-0,100g	no.							3		6		
0,200-0,250g	no.	47	5	7	2	11	1	1	7	5	33	20
0,300-0,350g	no.							2				
0,400-0,500g	no.	3	3		10	35	15	2			17	
1000g	no.					2		1				
Fat content		**D**	**SE**	**UK**	**CAN**	**US-East**	**US-CA**	**MEX**	**PL**	**H**	**AR**	**CL**
0,30-40%	no.	6									1	
69-70%	no.	3										
78-85%	no.	41	8	7	12	48	16	9	7	11	50	20
Packing format		**D**	**SE**	**UK**	**CAN**	**US-East**	**US-CA**	**MEX**	**PL**	**H**	**AR**	**CL**
paper	no.	48	8	7	12	6		5	7	11	49	20
thick paper	no.					41	16	4				
plastic	no.	2				1					2	

Source: Own data collection together with IFCN partners

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3.6 Butter – Prices in different clusters

Average prices per kg

		D	SE	UK	CAN	US- WI	US- CA	MEX	PL	H	AR	CL
Average price	DM/ kg	8,5	12,9	10,6	11,3	14,2	17,3	11,9	5,0	8,6	13,1	9,4
Size of the supermarke		**D**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**MEX**	**PL**	**H**	**AR**	**CL**
500-999m2	DM/ kg	8,3	12,9	10,6	11,3	14,4		12,9	4,9	8,6	12,7	
1000-5000m2	DM/ kg	8,7	12,9			13,6	17,4		5,1		14,5	9,4
5001-10000m2	DM/ kg	8,9				14,5	17,2	11,8			12,1	
Size of packages		**D**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**MEX**	**PL**	**H**	**AR**	**CL**
0,090-0,100g	DM/ kg							10,6		8,5		
0,200-0,250g	DM/ kg	8,4	14,0	10,6	12,1	20,5	26,3	12,9	5,0	8,8	14,5	9,4
0,300-0,350g	DM/ kg							12,9				
0,400-0,500g	DM/ kg	9,6	9,9		11,2	11,8	16,8	18,4			11,0	
1000g	DM/ kg					21,4		10,8				
Fat content		**D**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**MEX**	**PL**	**H**	**AR**	**CL**
30-40%	DM/ kg	7,3									28,6	
69-70%	DM/ kg	8,9										
78-85%	DM/ kg	8,7	12,4	10,6	11,3	14,2	17,4	13,1	5,0	8,6	12,8	9,4
Packing format		**D**	**SE**	**UK**	**CAN**	**US- WI**	**US- CA**	**MEX**	**PL**	**H**	**AR**	**CL**
paper	DM/ kg	8,4	12,4	10,6	11,3	13,2		11,1	5,0	8,6	13,4	9,4
thick paper	DM/ kg					14,4	17,4	15,7				
plastic	DM/ kg	11,3				14,1					5,2	

Source: Own data collection together with IFCN partners

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