



PADS ESTIMATION RESULTS FOR LATVIA

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STRUCTURE OF PRESENTATION

- Current state of INFORUM modelling in Latvia
- Activities (current and planned)
- PADS
 - Private consumption trends un structure
 - Groups, subgroups
 - Constrains
 - Results
- Discussion

Current state of INFORUM modelling in Latvia



- Statistical bureau has finished USE and SUPPLY tables for 2004;
- Published in Eurostat;
- Problems:
 - poor quality;
 - No margins;
 - No symmetric IO;
 - ..
 - Conclusion: these tables cannot be used in model.
- Statistical bureau work on tables for 2007;
 - Conclusion: these tables are planned to be used as new base for the model (in order to replace IO for 2000).

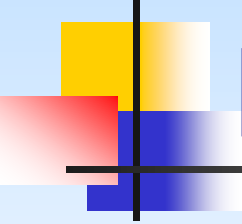


Current state of INFORUM modelling in Latvia

- Model:
 - Long-term forecasting (till 2020);
 - 2000 IO;
 - Sectoral disaggregation: 55 industries;
 - Private consumption: 12 groups.

- General state of the model: **freezed**.

Activities (current and planned)



- Private consumption;
- Estimation of the EU funds impact on Latvia's economy;
- Value added tax rate changes (government policy) (for food, books ect.)
- Banking lending, mortgages.

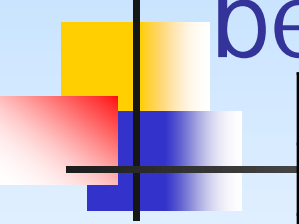
Private consumption estimation



■ PADS

- Disaggregation or number of elements (=number of products)
 - Alternatives:
 - 12 – COICOP main groups; - *rejected*
 - 67 – more detailed on COICOP classification basis; - *rejected*
 - 65 - more detailed on COICOP classification basis, modified on latest available data and planned application of the results (potential model application); - *accepted and in process.*

Food and non-alcoholic beverages (01) – 16 elements



Cereal products
Bread
Cakes and flour confectionery
Meat
Sausages and smoked meat
Fish
Milk, cheese and eggs
Oils and fats
Fruit and berries
Vegetables
Potatoes
Sugar
Sweets and honey
Other food products
Coffee, tea, cocoa
Refreshments

Alcoholic beverages and tobacco (02) – 2 elements

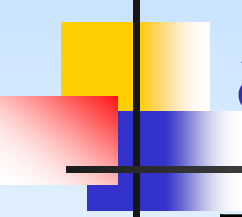
Alcoholic beverages
Tobacco



Clothing and footwear (03) – 6

elements

Clothing materials
Ready-made clothing
Other articles of clothing and clothing accessories
Cleaning, repair and hire of clothing
Footwear
Repair and hire of footwear



Housing, water, electricity, gas and other fuels (04) – 7 elements

Actual rentals for housing

Maintenance and repair of the dwelling

Water supply and miscellaneous services relating to the dwelling

Electricity

Network gas

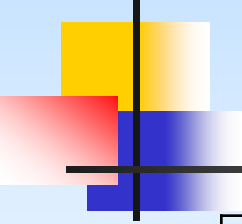
Solid fuels

Heat energy

Furnishings, household equipment and routine maintenance of the house (05) – *6 elements*

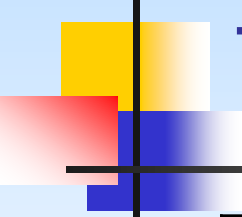


Furniture, furnishings, carpets and other floor coverings
Household textiles
Household appliances
Glassware, tableware and household utensils
Tools and equipment for house and garden
Goods and services for routine household maintenance



Health (06) – *3 elements*

Medical products, appliances and equipment
Outpatient services
Hospital services



Transport (07) – *4 elements*

Purchase of vehicles

Operation of personal transport equipment (without fuels)

Fuels

Transport services

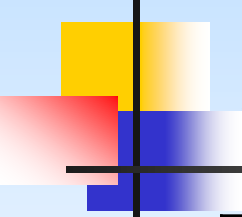


Communication (08) – *3 elements*

Postal services

Telephone and telefax equipment

Telephone and telefax services



Recreation and culture (09) – 5

elements

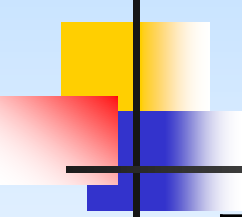
Audio-visual, photographic and information processing equipment

Recreational items and equipment, gardens and pets

Recreational and cultural services

Newspapers, books and stationery

Package holidays



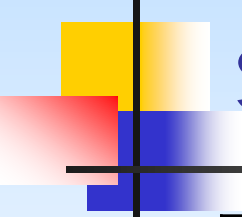
Education (10) – 4 elements

Pre-primary education
General school
Higher education institutions
Training courses for fee

Hotels, cafes and restaurants

(11) - 2 elements

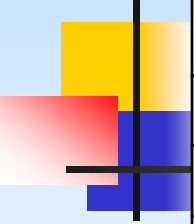
Catering services
Accommodation services



Miscellaneous goods and services (12) – *7 elements*

Hairdressing salons and personal grooming establishments
Appliances and products for personal care
Personal goods
Social protection
Insurance
Financial services
Other services

Number of elements



Food and non-alcoholic beverages	16
Alcoholic beverages, tobacco	2
Clothing and footwear	6
Housing, water, electricity, gas and other fuels	7
Furnishings, household equipment and routine household maintenance	6
Health	3
Transport	4
Communications	3
Recreation and culture	5
Education	4
Restaurants, cafes and hotels	2
Miscellaneous goods and services	7

Total number of elements: 65

Structure of private consumption in 2009 (%):
Food and non-alcoholic beverages

	2009
cereal products	0.4%
bread	1.8%
cakes and flour confectionery	1.7%
meat	3.0%
sausages and smoked meat	3.5%
Fish	1.2%
Milk, cheese and eggs	4.5%
Oils and fats	0.9%
Fruit and berries	1.8%
vegetables	2.5%
potatoes	0.9%
sugar	0.4%
sweets and honey	1.4%
Other food products	0.8%
Coffee, tea, cocoa	1.0%
Refreshments	0.7%
Total: Food and non-alcoholic beverages	26.7%

In yellow highlighted elements with more than 2% share in total expenditure

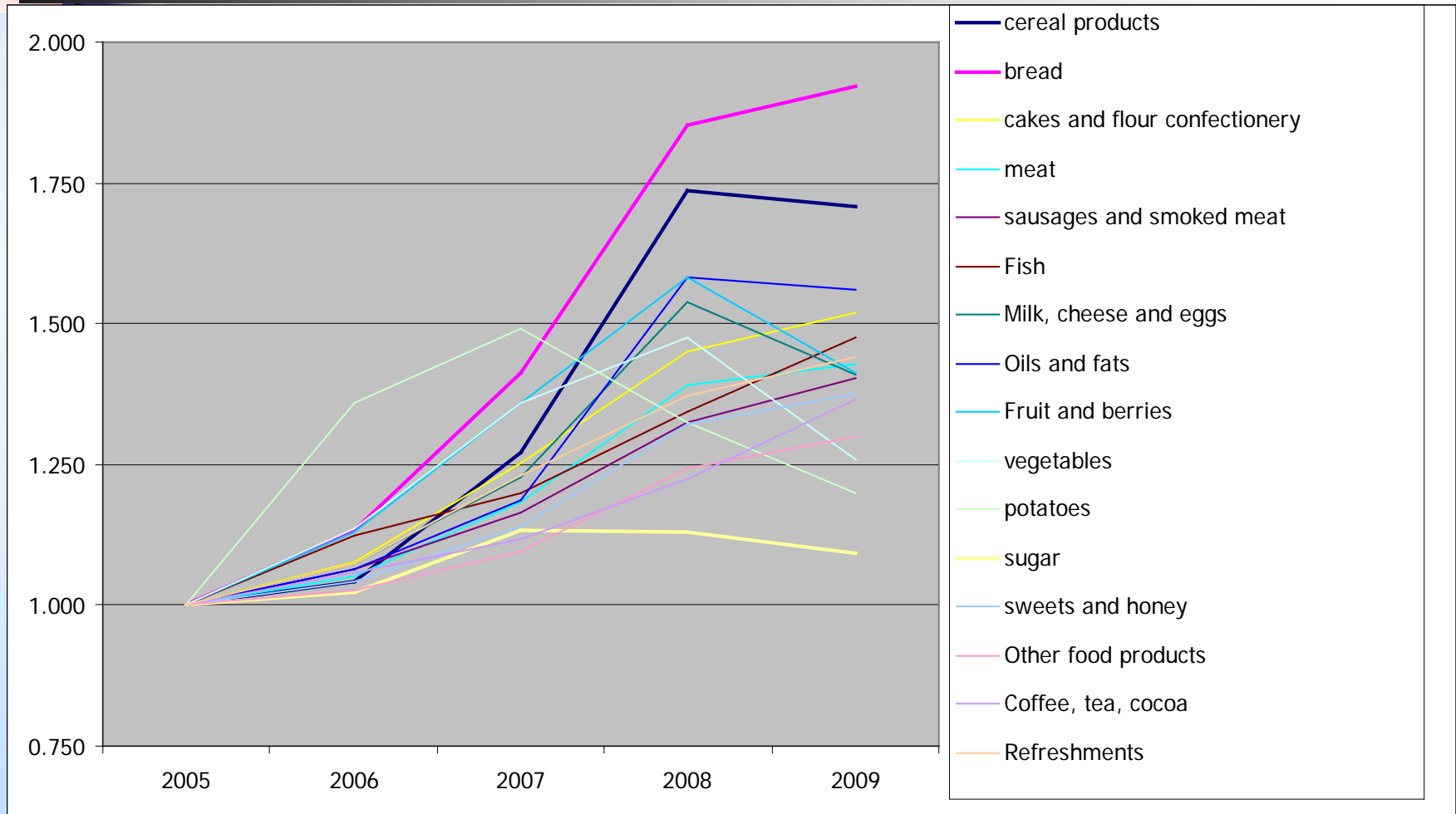
Structure of private consumption in 2009 (%):

Housing, water, electricity, gas and other fuels

	2009
Actual rentals for housing	1.2%
Maintenance and repair of the dwelling	2.6%
Water supply and miscellaneous services relating to the dwelling	1.8%
electricity	2.6%
network gas	0.8%
solid fuels	1.8%
heat energy	4.7%
Total: Housing, water, electricity, gas and other fuels	15.5%

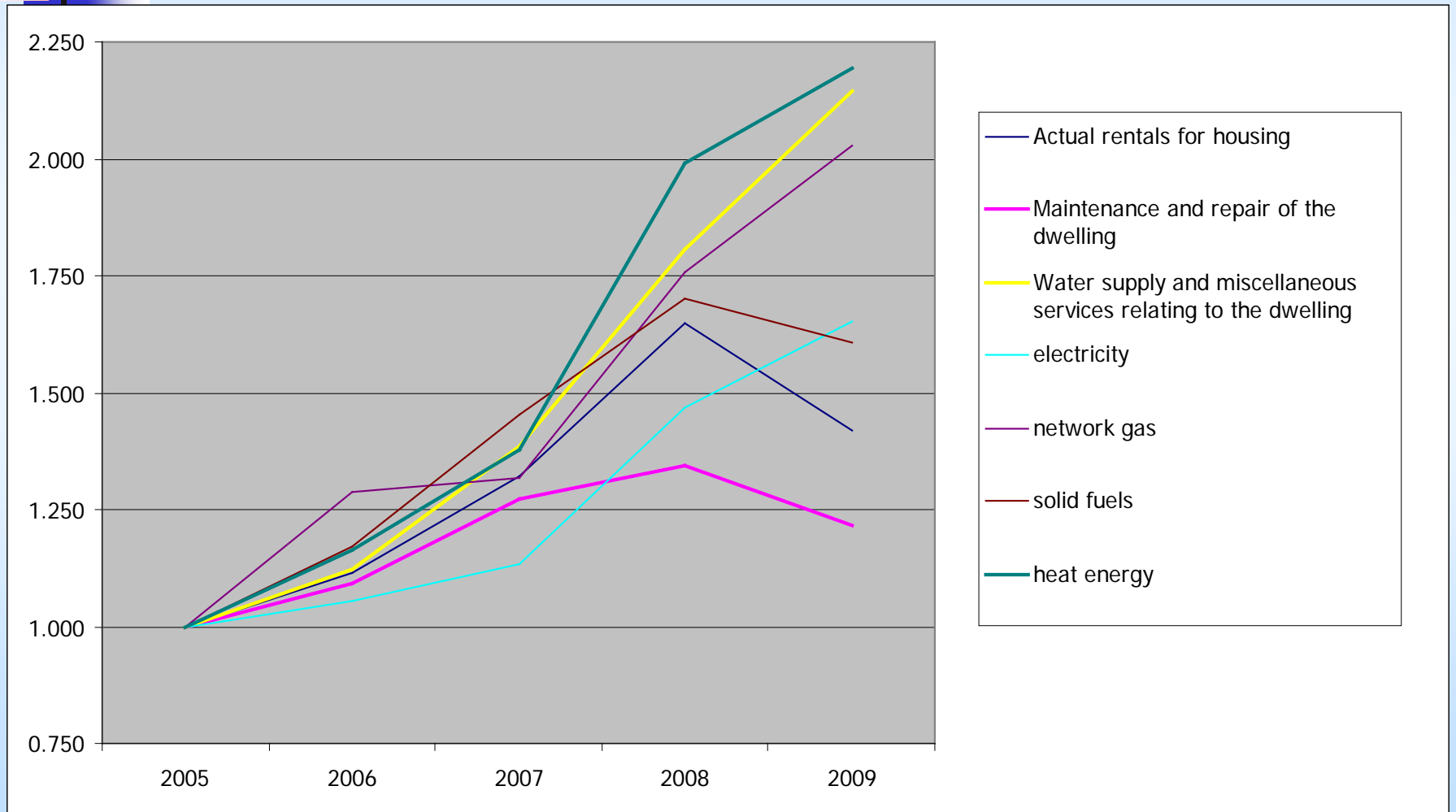
In yellow highlighted elements with more than 2% share in total expenditure

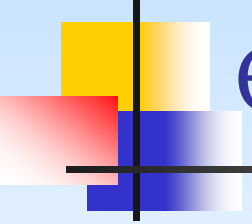
Prices (2005=1): Food and non-alcoholic beverages



Prices (2005=1):

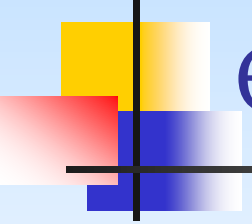
Housing, water, electricity, gas and other fuels





PADS estimation: pre-estimation activities

- Data;
- Groups and subgroups;
- Constrains.



PADS estimation: pre-estimation activities

- **Data;**
 - Source: Statistical bureau;
 - Time period: 2002-2009;
 - “population” and “income” variables;

PADS estimation: pre-estimation activities

■ Groups;

■ Subgroups;

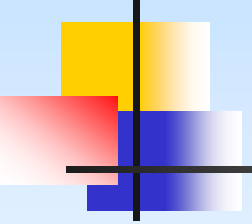
Illustration of Groups and Subgroups

Product	Group	Subgroup
=====		
1. Meat	I	A
2. Fish	I	A
3. Dairy products	I	A

4. Cereal products	I	B
5. Fruits and vegetables	I	B
6. Other food products	I	B
=====		
7. Automobiles	II	C
8. Gasoline and oil	II	C
9. Tires, batteries, repair	II	C

10. Public transportation	II	
=====		
11. Clothing	III	
12. Shoes	III	
=====		
13. Other durables		
14. Other non-durables		
15. Other services		
=====		

PADS estimation: pre-estimation activities

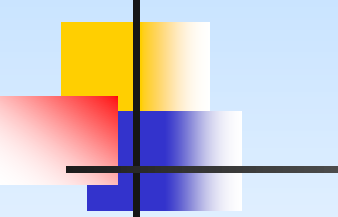


- Groups;
- Subgroups;

theoretically correct
and logical definition
of groups

vs.

alternative

- 
- I. Food group
 - A. Protein source subgroup
 - 2 Meat
 - 3 Fish & seafood
 - 4 1 Dairy products
 - 1 Cereal and bakery products
 - 5 Fats & oils
 - 6 Fresh fruit
 - 7 Fresh vegetables
 - 8 Sugar & sweets
 - 9 Processed fruit and vegetables
 - 10 Other prepared food, Pet food
 - 11 Nonalcoholic beverages
 - 12 Alcoholic beverages
 - II. Dress group
 - 14 Clothing and its cleaning and repair
 - 15 Footwear and repair
 - III. House furnishing and operation group
 - 18 Furniture
 - 19 Floor coverings and textile products
 - 20 Kitchen & hh appliances
 - 21 China & glaswr, tablwr & utensils
 - 22 Other non-durables and services
 - 23 Domestic services
 - 32 TV, radio, audio, musical instruments, computers
 - IV. Medical group
 - 24 Drug preparations and sundries
 - 25 Ophthalmic & orthopedic eqpt
 - 26 Physicians, dentists, other
 - 27 Hospitals, nursing homes

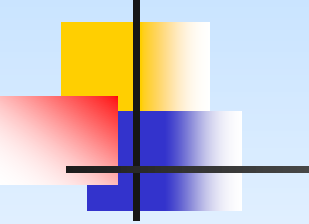
- V. Transportation group
 - A. Private transportation
 - 28 Vehicles
 - 29 Operation of motor vehicles
 - 30 Public transportation

- Ungrouped products
 - 13 Tobacco
 - 16 Tenant occupied nonfrm spac, Water
 - 17 Electricity, oil, gas, coal
 - 31 Communication
 - 33 Books & maps, Magazines and newspapers
 - 34 Education
 - 35 Recreational services
 - 36 Personal care
 - 37 Hotels & motels, restaurants
 - 38 Other goods
 - 39 Financial services and insurance
 - 40 Other services

- Extra American sectors not in European accounts
 - 41 Food furnished employees and food on farms
 - 42 Owner-occupied housing
 - 43 Foreign travel
 - 44 Imputed financial services

Source: Almon C. The craft economic modeling III part.

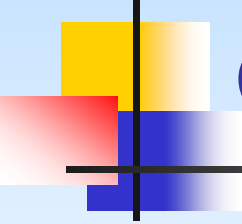
Groups and subgroups (1)



No.	Group	Subgroup	Title
1	1	1	0 cereal products
2	1	1	0 bread
3	1	1	0 cakes and flour confectionery
4	1	1	1 meat
5	1	1	1 sausages and smoked meat
6	1	1	1 Fish
7	1	1	1 Milk, cheese and eggs
8	1	1	0 Oils and fats
9	1	1	2 Fruit and berries
10	1	1	2 vegetables
11	1	1	0 potatoes
12	1	1	0 sugar
13	1	1	0 sweets and honey
14	1	1	0 Other food products
15	2	2	0 Coffee, tea, cocoa
16	2	2	0 Refreshments
17	2	2	0 Alcoholic beverages
18	0	0	0 Tobacco
19	3	3	0 Clothing materials
20	3	3	0 Ready-made clothing
21	3	3	0 other articles of clothing and clothing accessories
22	3	3	0 cleaning, repair and hire of clothing
23	3	3	0 footwear
24	3	3	0 Repair and hire of footwear
25	3	3	0 Actual rentals for housing
26	3	3	0 Maintenance and repair of the dwelling
27	0	0	0 Water supply and miscellaneous services relating to the dwelling
28	4	4	0 electricity
29	4	4	0 network gas
30	4	4	0 solid fuels
31	4	4	0 heat energy

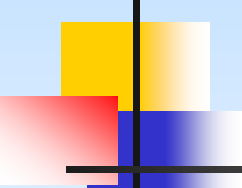
Groups and subgroups (2)

No.	Group	Subgroup	Title
32	5	0	Furniture, furnishings, carpets and other floor coverings
33	5	0	Household textiles
34	5	0	Household appliances
35	5	0	Glassware, tableware and household utensils
36	5	0	Tools and equipment for house and garden
37	5	0	Goods and services for routine household maintenance
38	0	0	Medical products, appliances and equipment
39	0	0	Outpatient services
40	0	0	Hospital services
41	6	3	Purchase of vehicles
42	6	3	Operation of personal transport equipment (without fuels)
43	6	3	Fuels
44	6	0	Transport services
45	0	0	Postal services
46	0	0	Telephone and telefax equipment
47	0	0	Telephone and telefax services
48	0	0	Audio-visual, photographic and information processing equipment
49	7	0	Recreational items and equipment, gardens and pets
50	7	0	Recreational and cultural services
51	7	0	Newspapers, books and stationery
52	7	0	Package holidays
53	0	0	Pre-primary education
54	0	0	General school
55	0	0	Higher education institutions
56	0	0	Training courses for fee
57	0	0	Catering services
58	0	0	Accommodation services
59	0	0	Hairdressing salons and personal grooming establishments
60	0	0	Appliances and products for personal care
61	0	0	Personal effects nec
62	0	0	Social protection
63	0	0	INSURANCE
64	0	0	Financial services
65	0	0	Other services



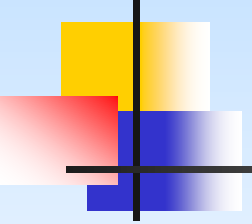
PADS estimation: pre- estimation activities

- Data;
- Groups;
- **Constrains.**



The second major control file is softcon.dat, which gives soft constraints for the various equations. It is, in fact, hardly to be expected that all parameters would come out with reasonable values when so many of the variables have similar trends. Thus the use of soft constraints on the coefficients is an integral part of the estimation process. The estimation program allows the user to specify the desired value of any parameter except the constant term and to specify a "trade-off parameter" to express the user's trade-off between closeness of fit and conformity with desired values of the parameters. In these studies, I began with constraints saying that I wanted the time trends to be close to zero. I then worked on the income elasticities to get them all positive; for some products, that meant relaxing the soft constraint on the time trend. Then I added soft constraints to make the own price elasticities all negative. Finally, some of the coefficients on the change in income had to be constrained to keep them from being more negative than the income term is positive.

Source: Almon C. The craft economic modeling III part.

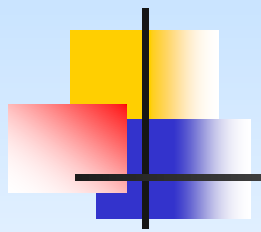
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-
- **Problem No.2:** almost ideal, logical and sound constrains, but results are astonishing (error term, negative rho, price elasticity signs etc.).
 - Problem No.2: whether **soft constrains or groups and subgroups** should be altered (which or what is responsible for unsound/illogical results?)





PADS estimation results

- Latvian data results form a ground for several radical conclusions:
 - Fast growing/falling economies can not be used in PADS estimations;
 - Inappropriate time period;
 - Latvia's economy as an small open 'price taker' economy perform as such economies do and results reflect private consumption pattern (?).
 - Technical mistakes, misreading of input data;



Thank you for attention!

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