Modeling Expenditures for Private Health Insurance in Croatia
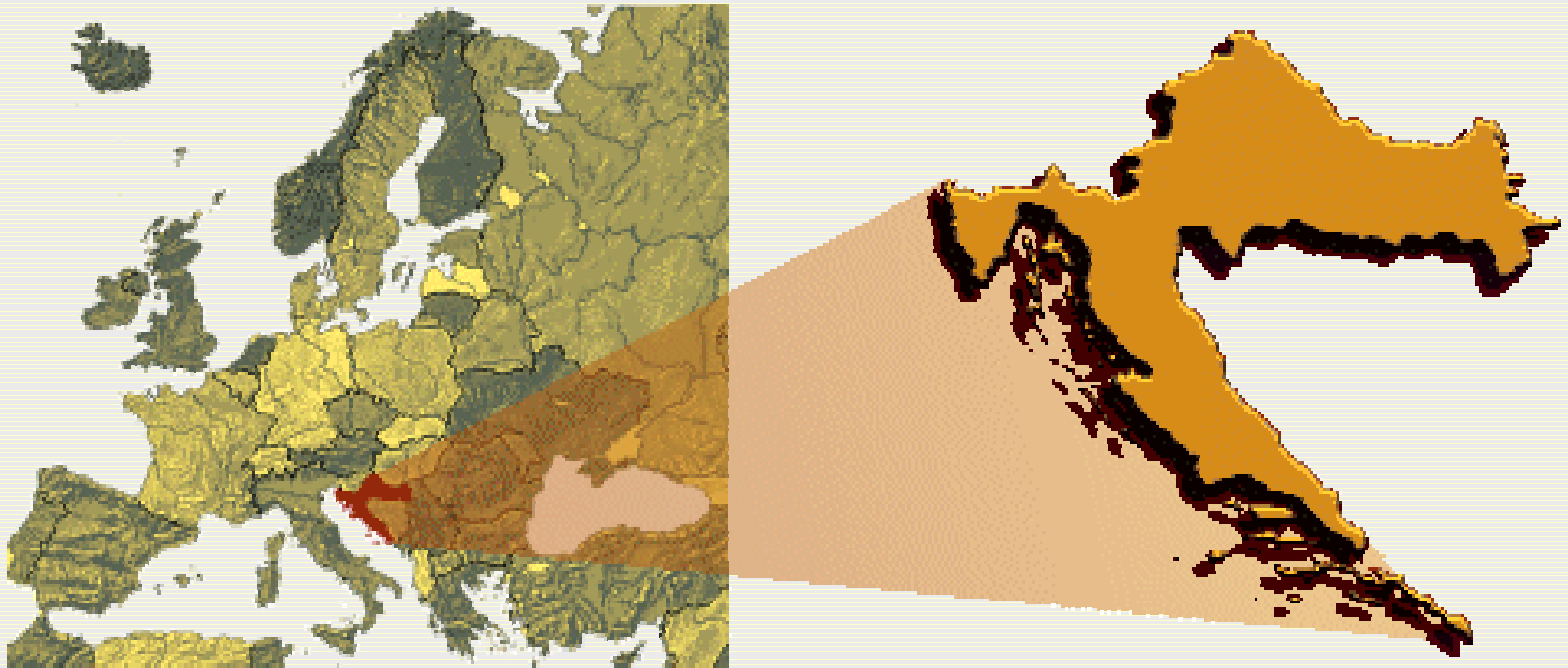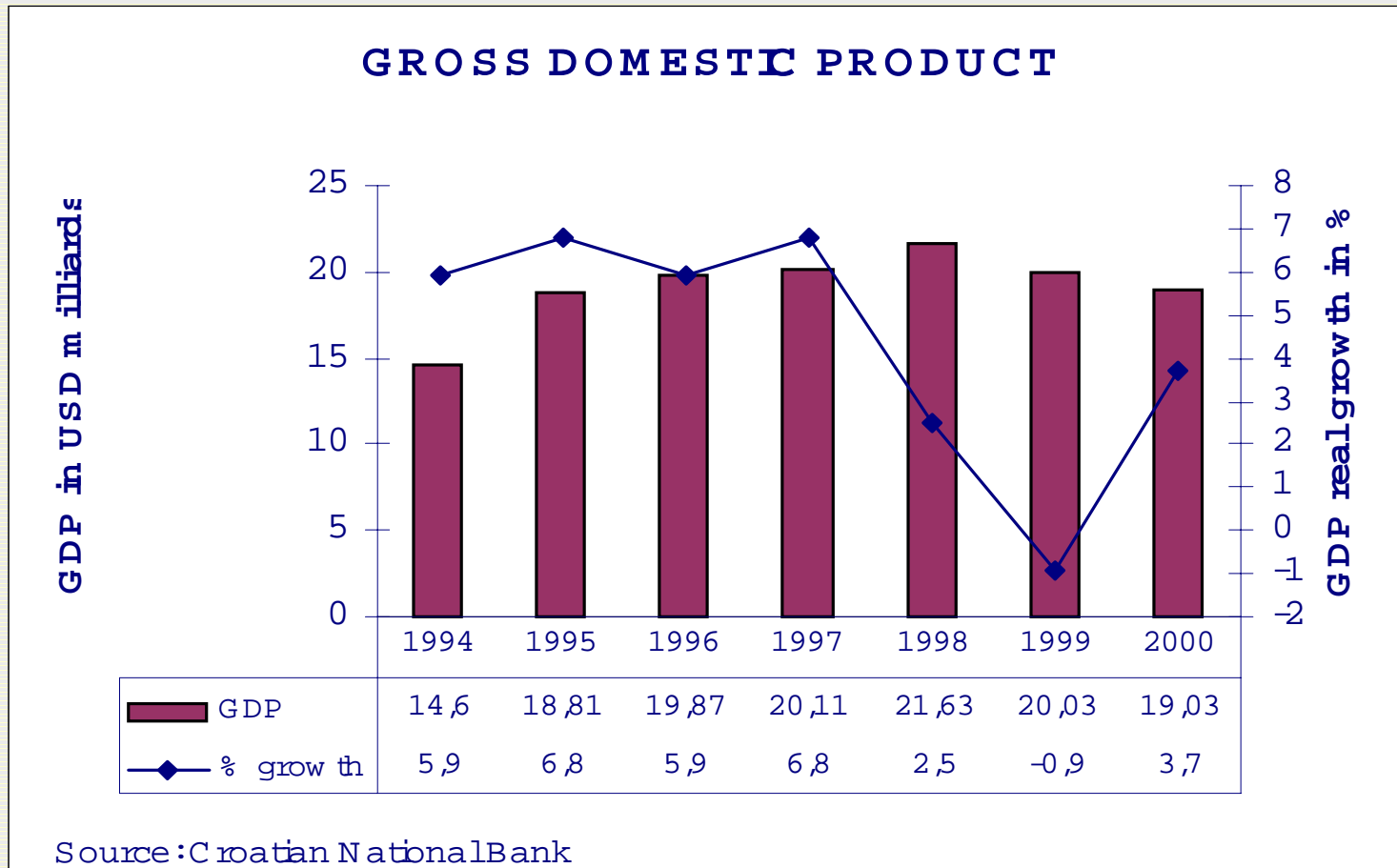
Tatjana Racic - Zlibar

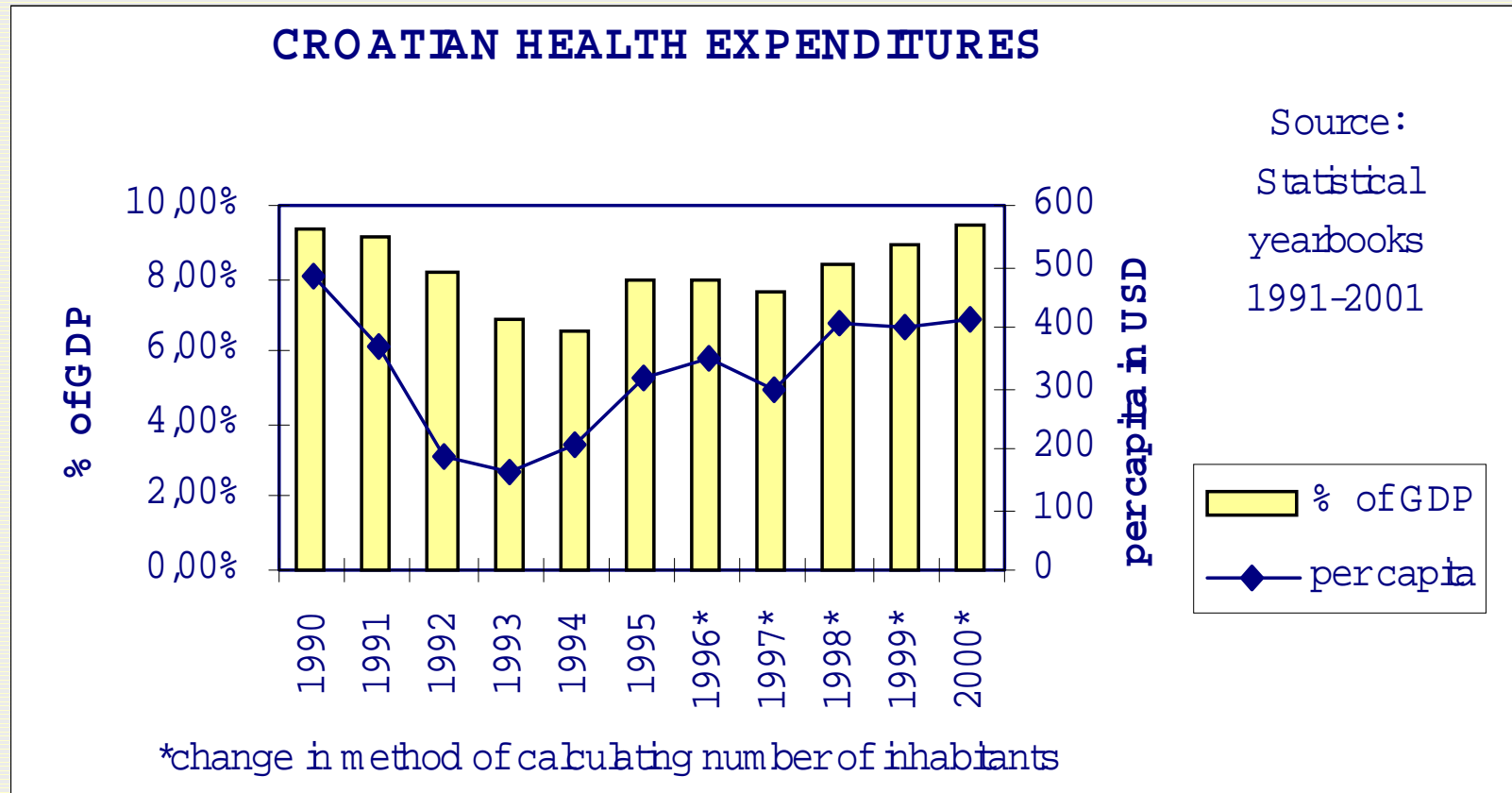# Croatia

- 89,810 m^2 (56.610 m^2 land and 33.200 m^2 sea)
- 4,38 million inhabitants

Croatian Economy

GROSS DOMESTIC PRODUCT

GDP in USD milliards (left axis) | GDP real growth in % (right axis)

	1994	1995	1996	1997	1998	1999	2000
GDP	14,6	18,81	19,87	20,11	21,63	20,03	19,03
% growth	5,9	6,8	5,9	6,8	2,5	−0,9	3,7

Source: Croatian National Bank

Croatian Health Expenditures

CROATIAN HEALTH EXPENDITURES

Source: Statistical yearbooks 1991-2001

% of GDP (left axis): 10,00%, 8,00%, 6,00%, 4,00%, 2,00%, 0,00%

per capita in USD (right axis): 600, 500, 400, 300, 200, 100, 0

Years: 1990, 1991, 1992, 1993, 1994, 1995, 1996*, 1997*, 1998*, 1999*, 2000*

Legend: % of GDP, per capita

*change in method of calculating number of inhabitants

Health Insurance till 1.1.2002.

- compulsory national insurance scheme
- voluntary health insurance:
  - supplementary
    - supplementing compulsory health insurance
    - provided by insurance company or health institutions or health workers
  - private
    - substitute for compulsory health insurance
    - provided by insurance company

Voluntary Health Insurance

	NUMBER OF CONTRACTS			WRITTEN PREMIUM		
DEVELOPMENT OF VOLUNTARY HEALTH INSURANCE IN CROATIA						
YEAR	NUMBER	% IN HEALTH	% IN NON-LIFE	AMOUNT 000 kn	% IN HEALTH	% IN NON-LIFE
Supplementary						
1998	3.333	6,09%	0,11%	3.097	1,13%	0,09%
1999	4.894	8,14%	0,15%	6.655	2,30%	0,18%
2000	5.657	8,46%	0,16%	7.437	2,61%	0,20%
Private						
1998	0	0,00%	0,00%	0	0,00%	0,00%
1999	1	0,00%	0,00%	22	0,01%	0,00%
2000	27	0,04%	0,00%	821	0,29%	0,02%

Private Health Insurance Model

- must provide at least equal care and services as compulsory health insurance
- same structure --> 9 submodels:
  - primary health care
  - polyclinical - consultative specialist health care
  - inpatient health care
  - prescription drugs

Private Health Insurance Model

- submodels (continued):
    - orthopaedic devices and prostheses
    - other health care expenditures,
    - travelling expenses,
    - sick and maternity leave compensation,
    - other compensation (allowances)
- system operating expenditures or special projects in expense loading

Private Health Insurance Model

- robust model to withstand systematic changes

- risk cost - expenditure per unit of population measured over a time period

  - risk cost = claim frequency * claim severity
    - claim frequency = number of claims / exposure
    - claim severity = mean claim size
      = average expenditure / utilization

Private Health Insurance Model

- no assumptions on claim severity and claim frequency distributions
- distribution assumptions (based on past data) on annual rate of change of:
  – population
  – inflation
  – medical inflation (each submodel)
  – utilisation of health services (each submodel)

Private Health Insurance Model

- ■ **Random variables:**
  - ■ $P(t)$ - insured population size in year t,
  - ■ $PP(t)$ - the rate of change of the insured population size in year t,
  - ■ $U_i(t)$ - number of utilisation of health insurance services in year t for submodel i,
  - ■ $PU_i(t)$ - the rate of change of utilisation of health insurance services per capita in year t for submodel i,

Private Health Insurance Model

- Random variables (continued):
    - $E_i(t)$ - expenditures in year t for submodel i,
    - $MI_i(t)$ - the rate of change in medical care price in year t for submodel i,
    - $I(t)$ - the rate of change in retail price index in year t
- Wilkie model for retail price index

Private Health Insurance Model

$$P(t) = P(t-1) * (1 + PP(t)$$

$$U_i(t) = U_i(t-1) * (1 + PU_i(t)) * (1 + PP(t))$$

$$E_i(t) = E_i(t-1) * (1 + MI_i(t)) * (1 + PU_i(t)) * (1 + PP(t)) * (1 + I(t))$$
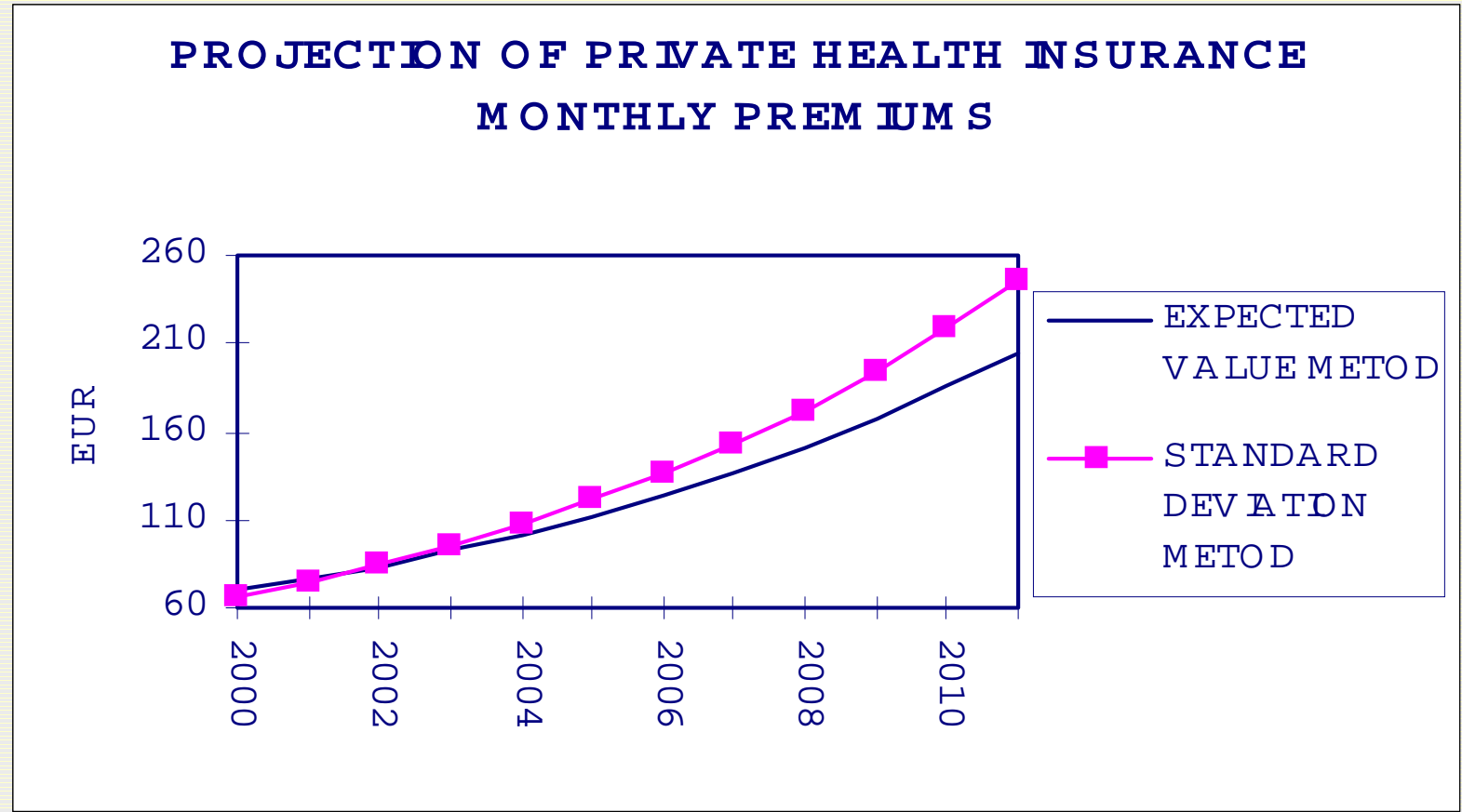
Private Health Insurance Model

- additional assumptions (theoretical):
  - charges by health institutions and health workers higher than prescribed by Croatian Health Insurance Institute
  - change in number of utilisation
  - lower number of bad days due to higher efficiency of private health system
  - additional premium for family members
  - development of portfolio

Private Health Insurance Model

PROJECTION OF EXPENDITURES IN PRIVATE HEALTH INSURANCE

Private Health Insurance Model

PROJECTION OF PRIVATE HEALTH INSURANCE
MONTHLY PREMIUMS
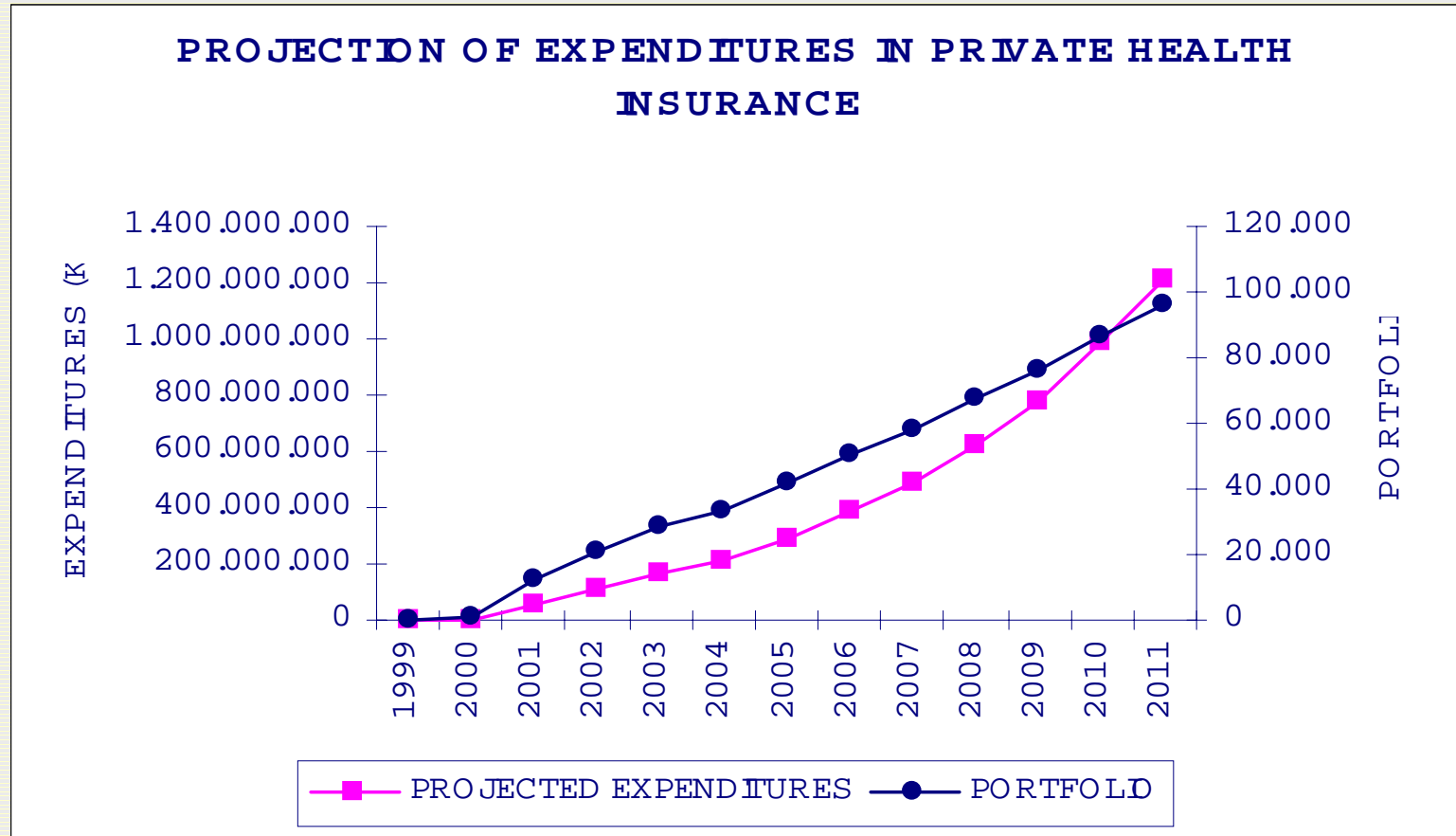
Private Health Insurance Model

COMPARISON OF CONTRIBUTIONS FOR COMPULSORY AND PREMIUMS FOR PRIVATE HEALTH INSURANCE				
	monthly net income EUR			
	625	1.250	2.500	3.500
public contributions / model private health premium	235%	471%	941%	1318%
public contributions / cheapest private health premium on the market	196%	392%	784%	1098%
public contributions / most expensive private health premium on the market	101%	203%	405%	567%

Private Health Insurance Model

IT IS COMPLETELY USELESS!

Why?

PRIVATE HEALTH INSURANCE AS
SUBSTITUTE
DOES NOT EXSIST ANY MORE!

Health Law Changes 1.1.2002.

- compulsory national insurance scheme
- voluntary health insurance:
  - supplementary
    - participations of compulsory health insurance
    - provided by insurance company or Croatian Health Insurance Institute (2 years monopol)
  - private
    - supplementing compulsory health insurance
    - provided by insurance company

Health Law Changes 1.1.2002.

- voluntary insurances:
    - long term insurances
    - obligation to accept all interested persons
    - equal rights and obligations for all insured

Health Law Changes 1.1.2002.

- legal actions on the Constitutional Court:
    - monopol for supplement insurance
    - private insurance as substitute
    - compulsory employers insurance
- drawback for development of health insurances

Croatia - land of 1000 islands