

The Key Role of the Milk Quota in the Reform of the Swiss Agricultural Policy

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Introduction

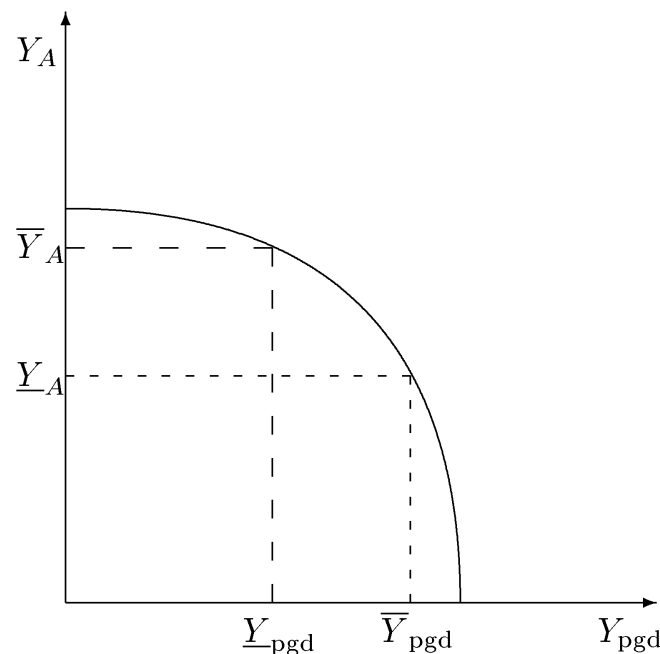
- Pareto superiority of the agricultural policy reform ?
- Second-best economy
 - » Lump-sum transfers not necessarily Pareto superior to supply control (Chambers, 1995)
- Computational general equilibrium model
 - » MacSharry reform of CAP (Folmer et al., 1995)
 - » Economic impact of the Uruguay Round (WBDP 307, 1995)
- Explicit modelling of agricultural policies
 - » Weyerbrock (1998) : Common agricultural policy
 - » Kilkenney (1991) : US agricultural policy
- Multifunctionality : public good concept

The Reform of the Swiss Agricultural Policy

- Background
 - » Price and market guarantees
 - Great degree of self-sufficiency (72% en 1985)
 - High production costs
 - » Uruguay Round Agreement on Agriculture (URAA)
- Objective : multifunctionality of agriculture (art. 104)
- Strategy : splitting up price and income policy
- Implementation
 - » Multifunctional aspect remunerated by direct payments
 - » Abolishing price and market guarantees
 - » Conversion of non-tariff barriers into tariff rate quotas
 - » Tariffs and export subsidies in line with URAA

Modelling the Multifunctionality

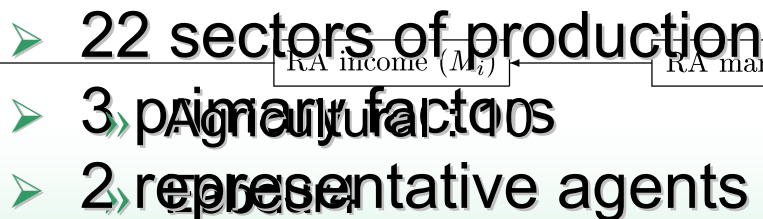
- Aims of the agricultural policy
 - » Food security
 - » Protection of natural resources
 - » Maintenance of the landscape
 - » Decentralized inhabitation
- Direct payments
 - » Public service remuneration
 - » Decoupled from production
- Public service achievement
 - » Production constraints
 - » Environmental constraints



Decoupled direct payments conditional on a friendly farming regime

The CGE Model

- 22 production sectors : agricultural (10) - food (4) - industrial (4) - service (4)
- 22 private goods : sector specific good
- 3 primary factors : labour - capital - land
- 1 public good : multifunctionality of agriculture
- 2 representative agents : farm - nonfarm households
- Government
- Investment
- Foreign trade



- » Farm Household
- » Nonfarm Household

Producer Behaviour

- Agricultural sector
 - » Output = CET(public good, private good)
 - Private good = CET(domestic, exported)
 - » Input = LT(value added, intermediate goods)
 - Value added = CES(labour, capital, land)
 - Intermediate goods = CES(domestic, imported)
- Food/Industrial/Service sector
 - » Output = CET(domestic, exported)
 - » Input = LT(value added, intermediate goods)
 - Value added = CES(labour, capital)
 - Intermediate goods = CES(domestic, imported)

Consumer Behaviour

- Utility = CES(leisure, composite consumption good)
 - » Consumption good = CES(public good, comp. private good)
 - Composite private good = CES(private goods)
 - Private good = CES(domestic, imported)
- Sluggish factor (land) : CET function
- Labour/capital markets : farm - nonfarm migration
- Income
 - + Net factor income and rents on production/tariff quotas
 - Private expenditure
 - Exogenous investment demand (savings)
 - Exogenous net trade surplus and net transfer to Gov
- Public good : consumption $\leq$ production

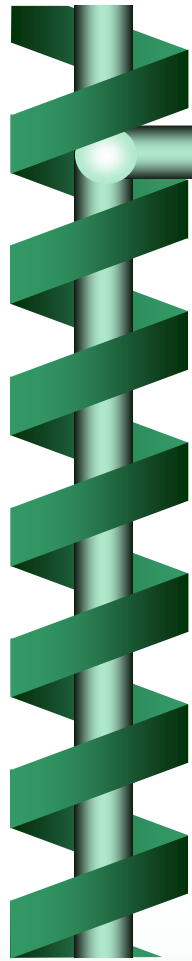
Government

- Regulation of the public good market
 - » Production purchase (direct payments)
 - Price : DP rate (incentive degree to produce PG)
 - Quantity : degree of ecological farming (share of the country's agricultural land farmed in an ecological way)
 - » Set exogenously by the Government
- Income
 - + Net taxes (VAT, direct taxes, input/output net subsidies, tariffs, export subsidies)
 - + Exogenous net transfer from household
 - Public good expenditure
 - Exogenous investment demand (savings)
 - Fixed expenditures (public administration & social security)

Closure Rules

- Government
 - » Balanced budget : VAT on industrial goods and services
- Investment
 - » Output = LT(Intermediate goods)
 - Intermediate goods = CES(domestic, imported)
 - » Exogenous investment = fixed aggregate savings
- Foreign trade
 - » Small country assumption → exogenous world prices
 - » Imperfect substitutes (exports and imports)
 - » Balance-of-payments equilibrium : exogenous capital outflow

Explicit Modelling of Agricultural Policies

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- Domestic policies
 - » Decoupled direct payments (public good value)
 - » Endogenous input subsidies (on labour and capital)
 - » Endogenous output subsidies
 - » Output quota on raw milk (rent to farmers)
 - Trade policies
 - » Exogenous/endogenous export subsidies
 - » Tariffs
 - » Tariff rate quotas (rents to nonfarm household)

Data and Calibration

(Benchmark year : 1995)

- Primary data (Grether and Mueller, 1999)
 - » Update of the 1990 SAM (OFS, DGD)
 - » 1996 tariff equivalents and VAT
- Additional data
 - » Direct taxes and transfers (OFS)
 - » Direct payments and agricultural subsidies (OFAG)
 - » Quota rents : (Lehmann et al., 2000)
 - » TRQ rents : tariff equivalents (OECD) – customs duty
- PG personalized valuation : proportional to income
- SAM balancing : cross entropy principle
- Elasticities from literature
- Leisure-labour ratio : 43 hours a week over 16 a day

Simulation

➤ Reform components

» Domestic policies

- Agriculture competitiveness : fall in production subsidies
- Sustainable agriculture : increase in direct payments

» Trade policies (URAA)

- Export competition : -36% (from 1986-90 levels)
- Market access : -15% (min. reduction from 86-88 base)

➤ Reform package (AP 2002)

(in mio.)

Instruments	1995 account	2002 fin. plan	Variation
Production subsidies	1'417	682	-735
Direct payments	1'522	2'482	+960
Export subsidy ceiling	514	440	-74
Tariffs - TRQs	645	1'049	-15%

Impact Analysis of Splitting up Price and Income Policy

	Benchmark (1995, fr.)	AP 2002 (% change)
Volume of public good (mio.)	1'522	47.66
Producer price of public good	1.00	10.60
Producer price of agricultural goods	1.05	-0.81
Market price of agricultural goods	1.00	0.91

- Increase in direct payments
 - » Good incentive scheme to public good production (+48%)
 - » 95% of agricultural useful area farmed in an ecological way (44% en 1995)
- Reduction of production subsidies
 - » Downward pressure of production prices
 - » Upward pressure of market prices

URAA Impact Analysis

	Benchmark (1995, mio.)	Without URAA	Only URAA	With URAA
Social welfare	454'111	-0.05	0.15	0.10
VAT rate (industrial goods & services)	6.18%	2.43	-5.08	-2.42
Volume of agr. prod. (domestic use)	11'712	-1.43	-1.77	-3.14
Volume of agricultural exports	376	-2.99	-1.15	-3.03
Volume of agricultural imports	3'399	1.95	4.92	7.02

(% change)

- Social welfare gains
- Decline of the VAT rate
- Volume on agricultural markets
 - » Decrease of production (domestic market and exports)
 - » Increase in imports

Welfare Analysis

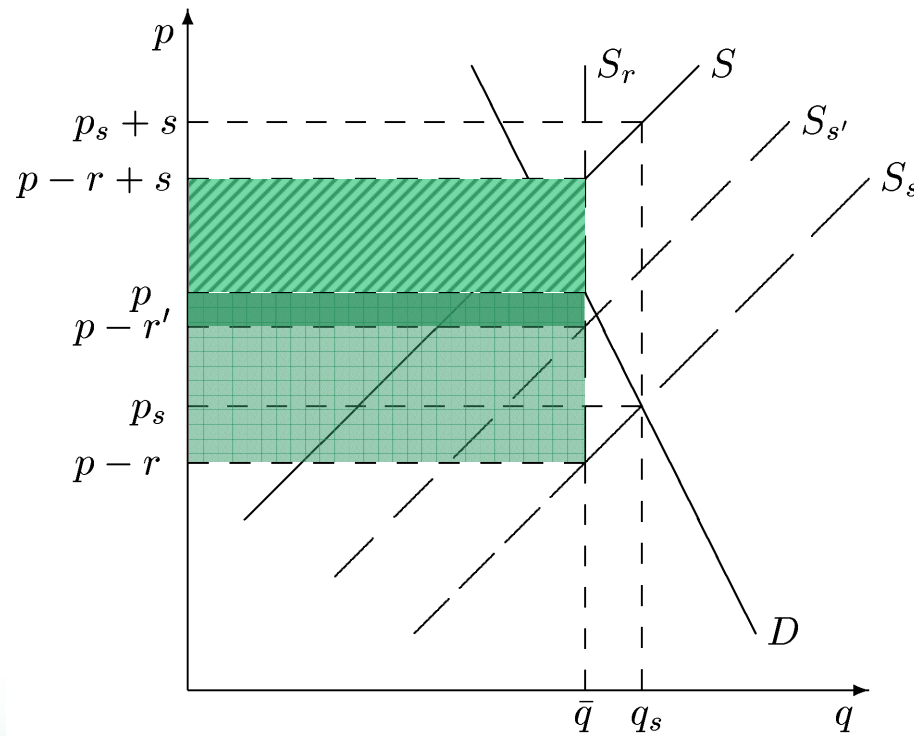
	Benchmark (1995, mio.)	AP 2002 (% change)
Welfare of the farm household	8'672	-4.43
Welfare of the nonfarm household	445'439	0.19
Social welfare (mio.)	454'111	444
Raw milk quota rent	608	-76.40

➤ Increase in social welfare

- » Farmers : welfare loss
 - Fall in raw milk quota rent
- » Nonfarm households : welfare gains
 - Reduction of production subsidies
 - Liberalization of agricultural trade

➤ Small impact of the reform (< 500 mio.)

Raw Milk Market Analysis



Conclusion

- Aims of the reform : competitive/sustainable agriculture
- Modelling issues
 - » Multifunctionality : public good remunerated through decoupled direct payments
 - » Explicit agricultural policies
 - » Farm and nonfarm households
- Implications of the agricultural policy reform
 - » Direct payments : effective incentive to multifunctionality
 - » Competitiveness : decrease of production and import prices
 - » Social welfare gains : 450 mio.
- Reconciliation of competitiveness/sustainability notions