Swiss cheese export potential and future opportunities

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Cheese stands out as one of the main Swiss agricultural trade offensive interests in international trade agreements. Outside the EU, the United States of America are an important export destination. The CAPRI model allows to assess the impact of a free trade agreement for cheese between the United States of America and Switzerland. (Photo: FOAG).

Abstract

The aim of this article is to analyze the developments of the Swiss cheese trade with particular attention to the Swiss export potential. The latest trade developments are presented for the main cheese varieties. The United States of America (USA) are Switzerland's (CH) main cheese export destination outside the European Union (EU), as well as the market with the highest export potential. However, in many markets, except the EU, cheese is still heavily protected, often by tariff rate quotas. The markets with the highest unrealized export potential for Swiss cheese are the United Kingdom, Spain, Japan and Germany. The EU and the USA are expected to increase their world export shares with current policies over the medium term, while all other major exporters would lose export shares. The CAPRI model, a partial equilibrium model for the agricultural sector, is utilized to assess the ex-ante impact of a possible free trade agreement for cheese between the USA and CH. Results show that CH could increase its total exports by about 5 %, while both cheese and raw milk Swiss producer prices would rise. The positive economic effects on the Swiss domestic market would largely outweigh the negative effects of a hypothetical removal of the payment for milk processed into cheese.

Key words: cheese, exports, market access, partial equilibrium modelling.

Introduction

Switzerland (CH) has established 33 free trade agreements (FTAs) with 43 partners till now. For trade in agricultural goods, the main offensive interests for CH are in coffee, non-alcoholic beverages, food preparations, chocolate and cheese. Among these products, cheese stands out as the main basic agricultural product with high offensive interests.

In 2021, Swiss cheese domestic production was above 200 thousand tons with exports accounting for about 2 % of world exports in value (Trade Map, ITC). Swiss cheese is exported to a large extent to the European Union (EU). Outside the EU, the major export destinations in order of importance are the United States of America (USA), Canada, Russia, Japan, Australia and China. In these countries, market access is still regulated by the presence of customs duties in the form of single tariffs or tariff rate quotas. From 2002 to 2007, cheese trade between the EU and CH has been progressively liberalized under the so-called Bilateral I Agreement. Since 2007, cheese trade between the EU and CH is liberalized. Meanwhile, CH is promoting reciprocal free trade for cheese in its bilateral trade agreements. In 1999, a subsidy for processing milk into cheese was introduced to help Swiss cheese producers compete on an international level in response to the liberalization of the cheese market with the EU (Listorti *et al.*, 2014).

The aim of this article is to analyze the developments of the Swiss cheese trade with particular attention to the Swiss export potential.[1] The introductory paragraph begins with a brief review of the latest market developments differentiated for the main cheese varieties. After analyzing trade trends, the study also examines the export potential for Swiss cheese worldwide. At the end, a free trade scenario for cheese between the USA and CH, optionally combined with the phasing out of the subsidy for processing milk into cheese, is developed and discussed.

Production and consumption

Swiss cheese production was around 205 347 tons in 2021, with an average annual growth rate of 1% between 2010 and 2021 (Agristat, 2022). Production of both semi-hard and fresh cheese has systematically increased since 2000, with an average annual growth rate of over 2%, while hard cheese production showed a negative trend until 2016, when the trend was reversed (Figure 1). Soft cheese production showed a positive trend from 2000 to 2010 and a negative trend afterwards until 2017, when the trend was reversed again

[1] The concept of export potential is the one developed by the International Trade Centre (ITC). It is based on Switzerland's export performance, market sizes and import conditions in these markets for Swiss cheese. See Export Potential Map in the Literature section.

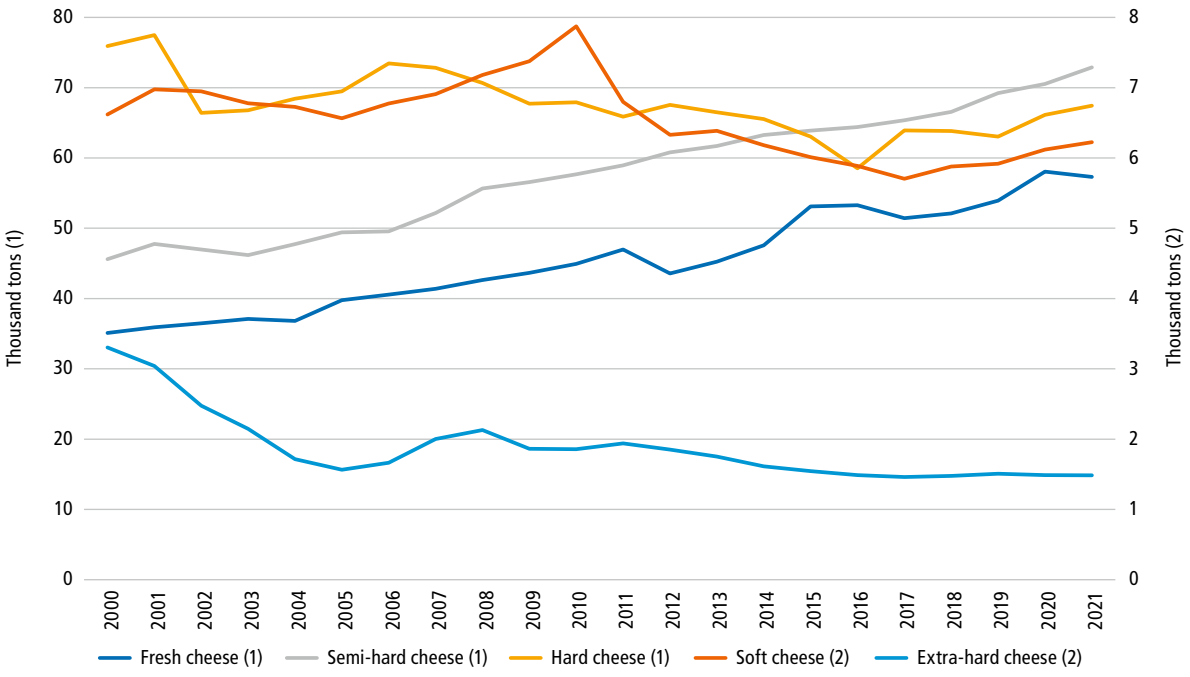

Figure 1 | Production trends for Swiss cheese varieties (2000–2021).

Source: Dairy statistics (Agristat, 2021). Note: fresh cheese, semi-hard cheese and hard cheese are reported on the primary vertical axis whereas soft cheese and extra-hard cheese are reported on the secondary vertical axis.

with an increase until 2021. Extra-hard cheese production has been displaying a negative trend for already many years, especially between 2000 and 2005. In 2021, fresh cheeses, semi-hard and hard cheeses accounted for 96 % of total cheese production in CH (fresh cheese 28 %, semi-hard cheese 35% and hard cheese 33 % by quantity).

Cheese consumption in CH shows a general upward trend for all cheese varieties between 2010 and 2021, with an average annual growth of 1.8 % (Figure 2). Over this period, domestic consumption has grown faster than production. Consumption of the different cheese varieties has continued to rise since 2000, with the exception of extra-hard cheese, whose consumption has fallen. Between 2000 and 2021, the production of semi-hard cheeses grew faster (+2.3 % p.a.) than consumption (+1.6 % p.a.). Per capita cheese consumption, taking into account the average population growth rate (around

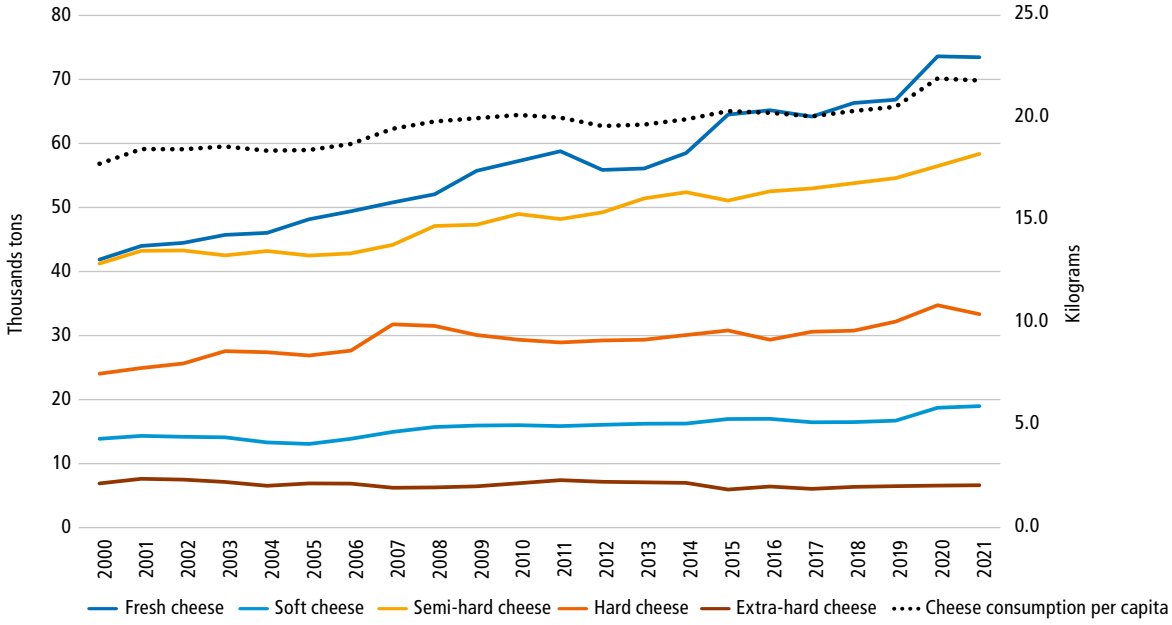

Figure 2 | Total and per capita consumption of Swiss cheese varieties (2000–2021).

Source: Dairy statistics (Agristat, 2021) and permanent resident population (FSO, 2022). Note: Cheese consumption per capita is reported in kilograms in the secondary vertical axis.

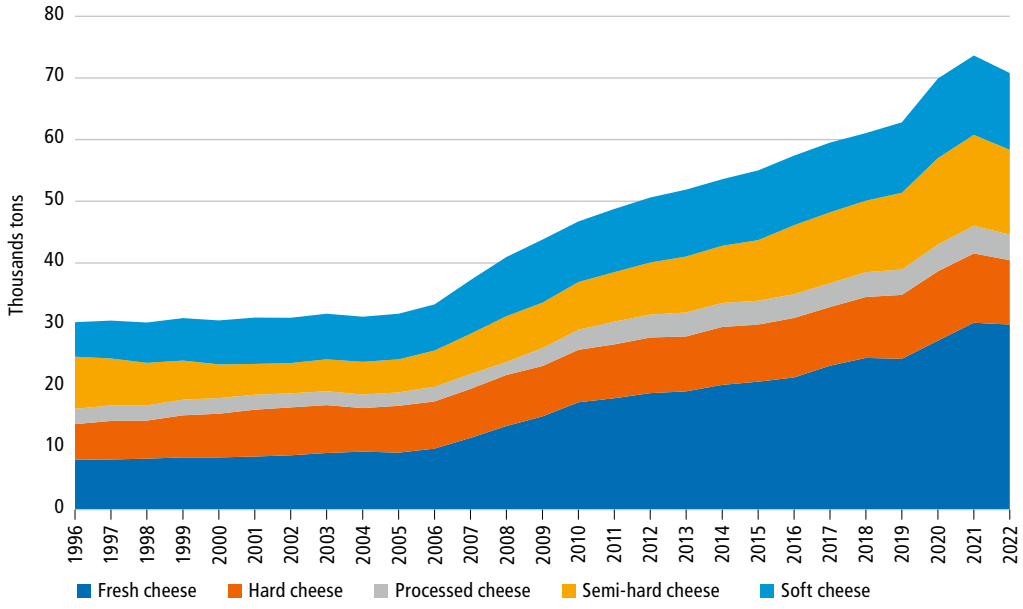

Figure 3 | Swiss import quantities of main cheese varieties from the EU (1996–2022).

Source: calculations based on the Swiss-Impex database, Federal Office for Customs and Border Security (FOCBS).

1 % p.a.) was 21.8 kilograms in 2021. Fresh cheese, semi-hard and hard cheese accounted for 87 % of domestic consumption in 2021 (fresh cheese 39 %, semi-hard cheese 31 % and hard cheese 17 % by quantity).

Trade

Swiss cheese imports originate mainly from the EU. Swiss import quantities from the EU have more than doubled since 2007, the year when the phasing out of bilateral tariffs on cheese has been completed, with an average rate of around 4.2 % a year (Figure 3).

Trade has grown the fastest for fresh cheese (+5.7 % on average p.a.), semi-hard cheese (+5.5 %) and processed cheese (+3.8 %). Over the same period, the import share of fresh cheese has considerably increased (+11 pp)[1] whereas the one for hard cheese and soft cheese (–7 pp and –6 pp) has declined. The sharp rise in cheese imports seems to correspond with an increased demand of the processing industry for cheese destinated for preparing ready-made meals (BAKBASEL, 2012).

Until 2006, Swiss cheese exports to the EU (Figure 4) were in slight decline (–2 % on average p.a.). Since 2007, cheese exports have increased at an average rate of around 1.6 % p.a. According to BAKBASEL (2012), the downward trend in Swiss cheese exports to the EU could be halted and reversed after the elimination of customs duties between CH and the EU (BAKBASEL, 2012). The cheese types where export quantities grew the most after 2007 are fresh cheeses (+15.2 % on average p.a.) and semi-hard cheeses (+4.9 % on average p.a.), which also increased their export shares at the expense of other cheese varieties. Export quantities of hard cheeses were already declining before the agreement with the EU was implemented, and have stabilized afterward. Export quantities of processed cheeses have fallen particularly since 2007. By 2022, exports of hard and semi-hard cheeses accounted for 81 % of total cheese exports to the EU.

The main destinations for Swiss cheese exports outside the EU, where exports exceed 1000 tons in 2022, are, in order of importance according to the Swiss-Impex database (FOBCS): the USA (8604 tons), Canada (1774 tons), the Russian Federation (1591 tons) and the United Kingdom (UK; 1459 tons). Among these main destinations, the countries where Swiss cheese exports grew fastest are the UK (+7 % p.a. over the period 2018-22, in quantity) and the USA (+1 % per year over the period 2018–22, in quantity).

Export potential and prospects

The world's main cheese exporting regions are shown in Figure 5 where the share of world exports by regions in quantity is reported. The EU, with which CH has a free-trade agreement for cheese, accounts for 41 % of global cheese exports, while the USA accounts for 12 %. The International Trade Centre's (ITC) Export Potential

[2] Abbreviation for percentage point.

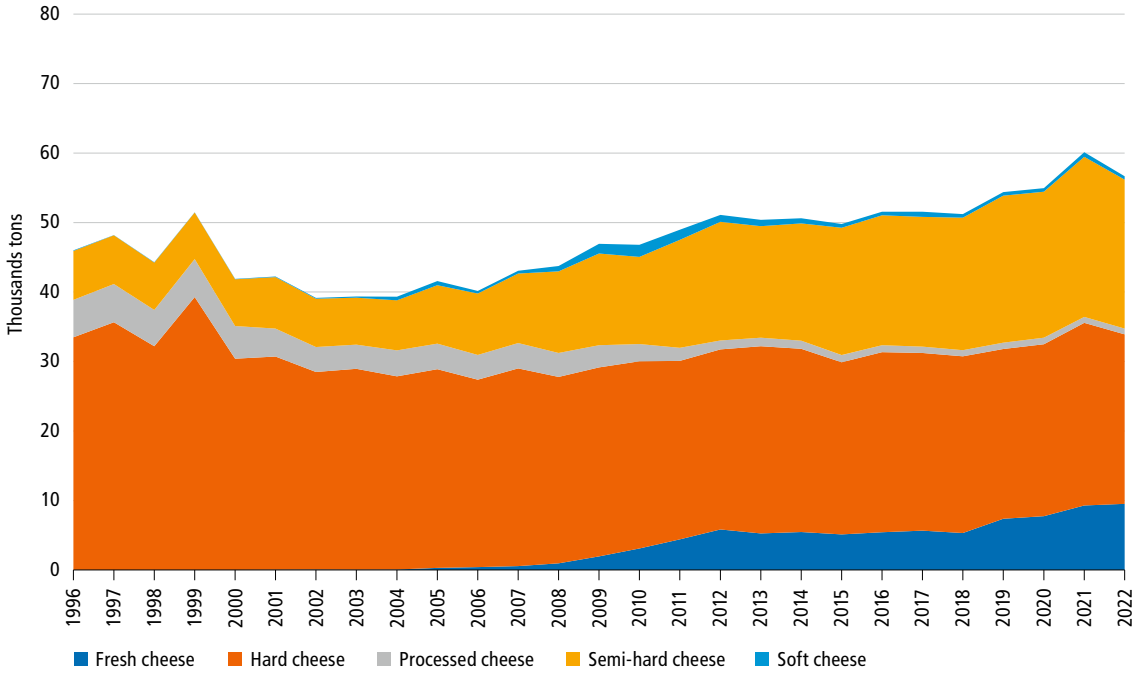

Figure 4 | Swiss cheese export quantities of main cheese varieties to the EU (1996–2022).

Source: calculations based on the Swiss-Impex database, Federal Office for Customs and Border Security (FOCBS).

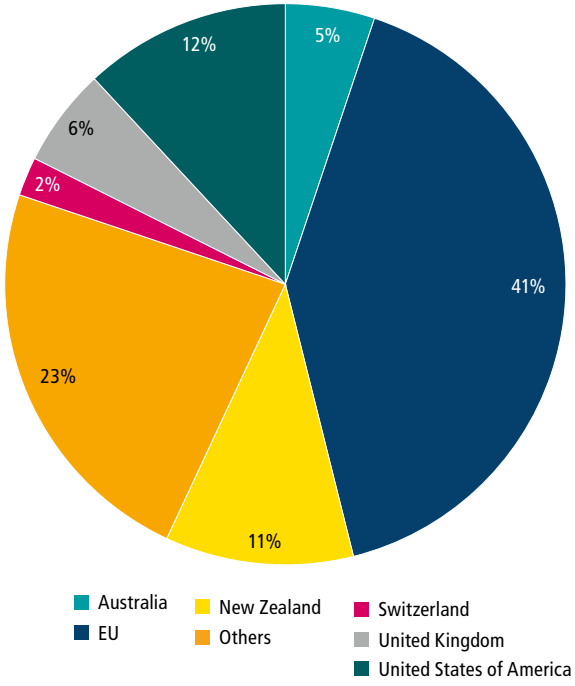

Figure 5 | Share of world cheese exports by region (2018–22, quantity).
Source: Trade Map, ITC. Note: Intra-EU trade is suppressed. Here we consider product 0406 ("Cheese and curd") of the 4 digits product code of the Harmonized System.

Map (EPM) identifies export opportunities for a country's trade development. Table 1 provides information of CH export potential for cheese (excluding fresh, grated, processed and blue-veined) worldwide, taking into account the top ten potential markets. The export potential follows the forward-looking development of supply, demand and ease of trade. The unrealized potential is the difference between the export potential values and actual export values. In short, the unrealized potential considers both forward looking developments as well as structural elements (i.e., difficulty complying with non-tariff measures, misalignment of supply with consumer preferences, lack of market intelligence with suboptimal allocation of exports to target markets).[3] It is noteworthy that, among the top ten markets of interest to CH, there are also non-EU countries such as the USA, Japan, Canada, Saudi Arabia, China, Australia, Egypt and the Russian Federation. Japan is the only East Asian market to appear among the top twenty markets of interest to CH. For these countries, apart from the existence of possible tariff quotas, there remains considerable customs protection for Swiss cheese.[4] The markets with the highest unrealized export potential for Swiss cheese are the United Kingdom, Spain, Japan and Germany. For the UK, the indicator shows a potential for additional exports equivalent to USD 35 million, compared to only USD 315 thousand for France. The unrealized export potential to EU countries is likely to be related to non-tariff protection elements (i.e., structural elements).

For the USA, there appears to be no unrealized potential left under current market conditions. This implies that major frictions are related to non-structural elements (i.e., forward looking elements such as GDP and population growth, and future tariffs). Among other things, the export potential indicator (EPI) also takes into account the expected tariff protection applied by the USA to CH and its competitors.

According to the OECD-FAO Agricultural Outlook 2023-32 (OECD-FAO, 2023), world cheese exports with current policies are set to globally develop positively over the medium term, with an average growth rate of around 1.5% per year. According to Figure 6, the EU, the USA, New Zealand, the United Kingdom, Australia and CH will together account for about 76 % of world exports in quantity terms in 2032. The EU and the USA are expected to increase their export shares, while all other countries would reduce it over the projection period. CH is expected to maintain its export share just above 1.9 %. For the top twenty markets of interest to CH, the countries expected to have the fastest average annual growth in imports over the period 2023–32 are Egypt (13 %), the United Kingdom (0.5 %), the USA (0.5 %) and the EU (0.5 %).

Table 1 | CH export potential for cheese worldwide (2027, in USD).

Market	Actual exports (USD, 2017–21)	Export potential (USD, 2027)	Unrealized potential (USD)
Germany	280 M	303 M	23 M
United States of America	101 M	90 M	
France	59 M	60 M	315 k
Italy	63 M	51 M	
United Kingdom	15 M	50 M	35 M
Spain	5.8 M	34 M	28 M
Japan	7.3 M	31 M	24 M
Austria	21 M	30 M	9 M
Netherlands	16 M	25 M	8.8 M
Canada	25 M	16 M	
Belgium	5 M	16 M	11 M
Slovenia	61 k	16 M	15 M

Source: Export Potential Map, ITC. Actual exports for cheese of the 4 digits product code 0406.90 of the Harmonized System are based on the average export value for the period 2017-21. The export potential indicator (EPI) is defined for 2027. The unrealized potential corresponds to the difference between the EPI and actual exports. Note: a) million is abbreviated by M; b) in bold are the top 4 markets with the greatest unrealized potential; c) in italics are indicated the markets outside the EU.

[3] See Export Potential Map in the Literature section.
[4] According to Trade Map (ITC), the following applied average rate of protection for cheese exists: Canada 245%, Japan 30%, United States 19%, Russian Federation 15% and Australia 6.9 %.

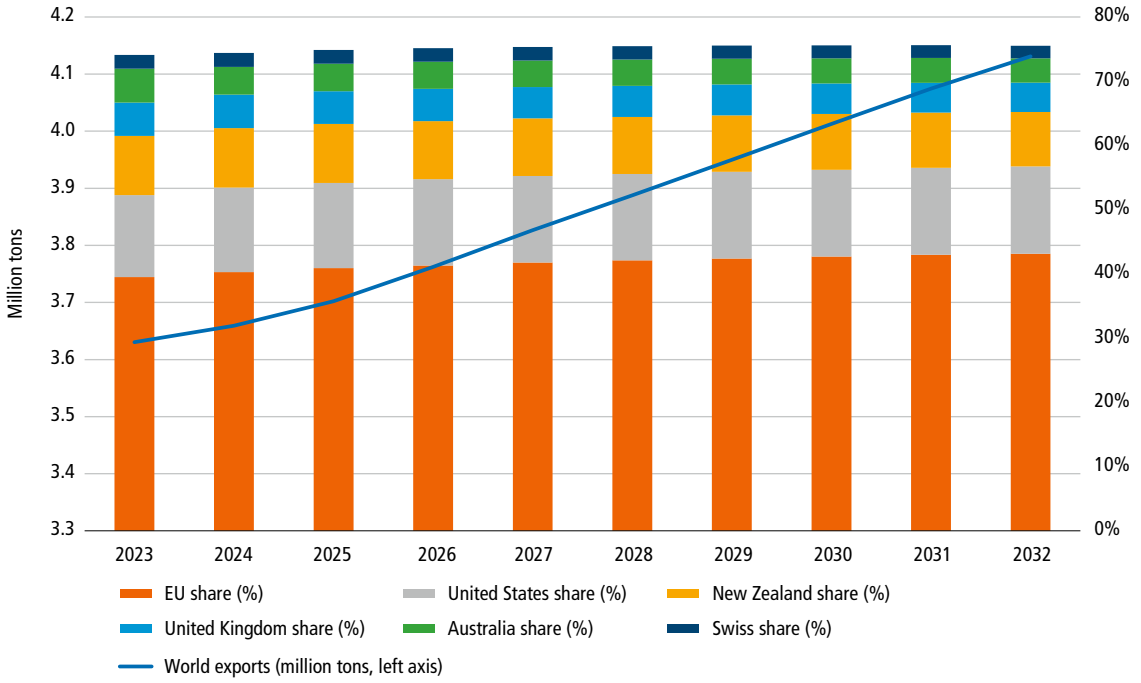

Figure 6 | World cheese export projections and market share of major exporters for the period 2023–32.
Source: OECD-FAO (2023).

Materials and Methods

The USA, outside the EU, are both the largest importer of Swiss cheese and the market with the highest export potential for CH. However, as previously indicated, there appears to be no unrealized export potential left indicating that increased Swiss exports to the USA could be obtained primarily through improving market access conditions rather than improving structural elements. Cheese imports into the USA are subject to a complex and very detailed system of tariff quotas. For CH, three multilateral tariff quotas (described in notes 16 to 23 and in note 25) defined according to the variety of cheese being imported are relevant.[5] To benefit from the quota, importers must apply for an import license. The allocation of licenses to importers is rather complex. A part of the licenses is allocated by the United States Department of Agriculture (USDA) on a historical basis; as a result of the Tokyo and Uruguay Rounds, another part is allocated by the exporting countries.

The three multilateral quotas used by CH are defined in Table 2 and their use is presented in Figure 7. For the period 2020–22, tariff rate quotas under note 16 and note 22 were not filled, while note 25 quota was exceeded (+573 tons). The underfill (–844 tons) and the presence of non-negligible out-of-quota imports (+3.651 tons) under note 16 quota both highlight at first an atypical situation. However, by considering the out-of-quota unit value, it appears that the out-of-quota customs protection is actually lower than the one that would be applicable within the quota for this type of cheese. This is explained by the fact that the product imported outside the quota is relatively expensive, and the out-of-quota tariff is specific while the in-quota tariff is ad valorem. In the other quotas (note 22 and 25), out-of-quota imports are rather negligible. When part of a multilateral quota is not used by one or more countries, the American system allows for the possibility of redistribution to the remaining trading partners.

The analysis of a free trade scenario for cheese between the USA and CH is developed relying on the market model of the Common Agricultural Policy Regionalised Modelling System (Britz *et al.*, 2014). The CAPRI market model is a spatial, comparative static, multi-commodity partial equilibrium model for the agricultural sector. The spatial representation of trade, based on Armington (1969) allows to represent bilateral trade between 45 regional trade blocks covering 77 countries. The aggregated tariffs for CH are calculated for the different products by the Federal Office for Agriculture (FOAG). In 2022, according to the Trade Map database of ITC, the USA imported 189 268 tons of cheese (product 0406 "Cheese and curd" of the 4 digits product code of the

[5] The Harmonized Tariff Schedule of the United States (HTS) sets out under Section I: Live Animals; Animal Products in Chapter 4 Dairy produce; bird eggs; natural honey; edible products of animal origin, not elsewhere specified or included provides the quantitative limitations for cheese. The relevant quantitative limitations applied to Switzerland can be found under note 16, note 22 and note 25 (USITC, 2023).

Table 2 | USA cheese quotas used by CH, 2020-22

		Cheese and substitutes for cheese (Note 16)	Swiss or Emmenthaler cheese (Note 22)	Swiss or Emmenthaler cheese with eye formation (Note 25)
Volume	Total	48627 tons	7855 tons	34475 tons
	CH	1720 tons	1850 tons	3630 tons
Tariff	In-quota	10 %	6.4–10 %	6.4 %
	Out-of-quota	1.509 USD/kg	1.386 USD/kg	1.877 USD/kg
Unit value	In-quota	13.7 USD/kg	6.2–7.8 USD/kg	6.4 USD/kg
	Out-of-quota	17.7 USD/kg	4.1–6.7 USD/kg	4.4 USD/kg

Source: US Foreign Agricultural Service website (FAS, 2022) and Swiss-Impex database, Federal Office for Customs and Border Security (FOCBS).

Harmonized System) whereas the multilateral cheese quota, according to the OECD-FAO Agricultural Outlook 2023–32, is set at 110000 tons (OECD-FAO, 2023). This means that overall, the multilateral cheese quota is filled and exceeded (Trade Map and Market Access Map, ITC). In the CAPRI model international database, the USA cheese imports are modeled with a multilateral quota that is exceeded (over-filled quota regime), which adequately reflects the current global situation. When the import demand exceeds the quota limit, the out-of-quota tariff rate applies, so that the import price equals the cost, insurance, and freight (c.i.f.) price plus the out-of-quota-tariff rate (Jafari *et al.*, 2021). The rather detailed and complex system of quota allocation by cheese type defined at the tariff number level cannot be specifically reflected in a model like CAPRI. However, for this analysis, particular attention was paid in calibrating representative market access conditions for CH into the American cheese market.[6] Swiss imports of cheese from the USA have been historically very modest. In addition, the EPM of the ITC does not show any potential for American cheese exports to CH.[7]

Raw milk in CAPRI is processed into nine dairy products: butter, casein, cheese, cream, condensed milk, fresh dairy products, skimmed milk powder, whey powder and whole milk powder. For more information on the

[6] In so doing an applied ad-valorem tariff of 11.9 % for Swiss cheese imported in the USA was computed and calibrated into the model. Swiss unit import values were calculated for the different products imported within the different quotas (Note 16, Note 22 and Note 26). In this way, more accurate market access conditions for Swiss cheese into the USA could be represented.

[7] The markets with the highest unrealized export potential for USA cheese are Mexico, Chile, Dominican Republic and Japan. Interestingly, Switzerland does not even feature among the top 40 markets for the USA (Trade Map, ITC).

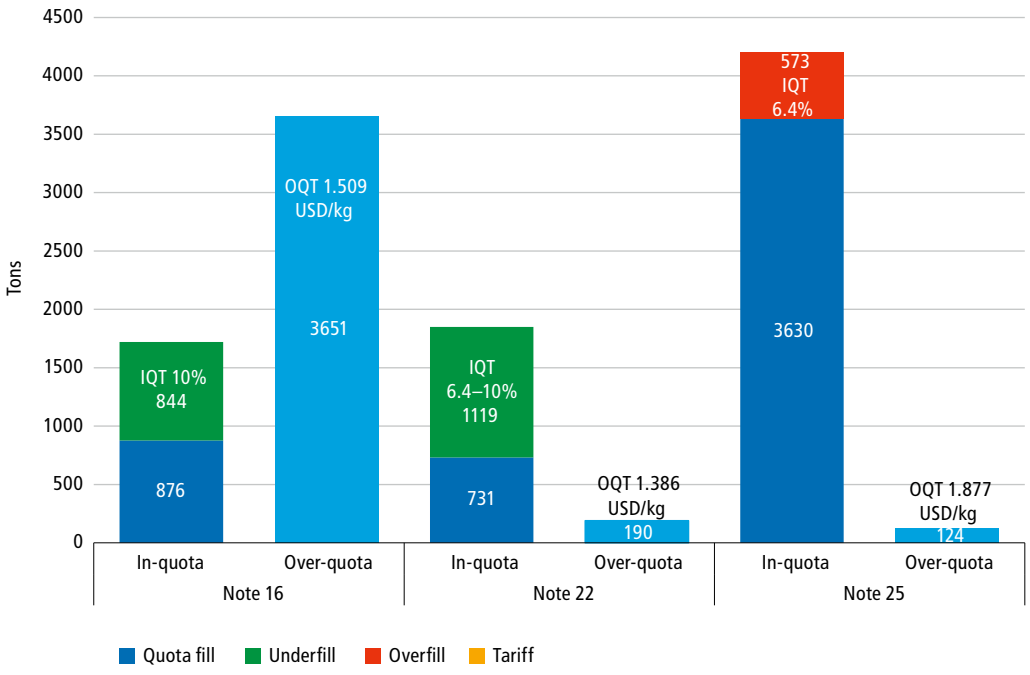

Figure 7 | Utilization of the USA quotas by CH, 2020–22.

Source: Trade Map and Market Access Map, ITC.

modelling of the dairy sector in CAPRI and its application to CH, the reader may refer to Finger *et al.*, (2017). In CAPRI, the payment for milk processed into cheese is modeled as an aid per kilogram of produced cheese (rather than milk) since the model for raw milk only represents the equilibrium condition between the aggregate supply and aggregate processing demand. The payment for milk processed into cheese has been fixed at 10.5 ct/kg since January 1st, 2019. In 2021, the total amount of the payment including the allowance for feeding without silage amounted to around CHF 233 million.

The scenarios modeled are as follows: a) reference scenario (R0) with a representation of status quo policies maintained until the year 2030. This scenario represents the yardstick for comparing the impact of the different policy scenarios; b) policy scenario 1 (S1): where the USA and CH implement a free trade agreement for cheese; c) policy scenario 2 (S2): as S1, but with a removal in CH of the supplement for milk processed into cheese including the allowance for feeding without silage.

Results

The main simulation results are presented and explained in Table 3. A free trade agreement (S1) with the USA would enable CH to increase its cheese exports to the USA by an additional 8000 tons. The impact on CH total exports would be smaller (around +3500 tons), as Swiss milk production is characterized by an inelastic supply response.[8] An increased demand for Swiss cheese in the USA would essentially translates into higher Swiss producer prices for cheese increasing the processing demand for raw milk with higher milk prices in the new equilibrium conditions. If CH additionally eliminates the payment for milk processed into cheese (S2), domestic cheese production would fall by almost 3% as compared to the reference scenario (R0). Bilateral exports to the USA would go down by around 1200 tons compared to S1. The producer price for cheese would still increase, remaining very close to the level in S1, whereas the price for raw milk would fall by around 6% compared to R0. This result remains largely consistent and comparable with the results of Listorti *et al.*, (2014).

[8] Swiss milk production has been declining slightly for several years (–0.7 % per year between 2011-20), according to Agristat's Dairy Statistics.

Discussion and conclusions

After the period of the gradual elimination of customs duties on cheese between CH and the EU from 2002 to 2007, Swiss cheese imports from the EU more than doubled with fresh cheeses increasing their import share. The downward trend in Swiss cheese exports to the EU before 2007 was halted and reversed afterwards. On the one hand, the markets with the highest unrealized export potential for Swiss cheese are the United Kingdom, Spain, Japan and Germany. To fill the gap between actual and potential cheese exports in these markets, CH would have to find new ways (e.g., improved marketing strategies) to better address the specificities of demand in these countries. On the other hand, there appears to be no unrealized export potential left under current market conditions for Swiss cheese exports to the USA. The USA is the main trade partner outside the EU for Swiss cheese exports. In this case, better market access conditions to the American cheese market could allow CH to maintain or increase its market share in the future. Free trade for cheese between the USA and CH would enable CH to increase its total exports by around 5% and improve price conditions for Swiss producers. Our analysis also shows that free trade conditions for cheese would counteract the negative autonomous effects of a removal of the payment for milk processed into cheese. ■

Acknowledgements

The use of the CAPRI model at FOAG benefits from a long-lasting technical assistance provided by a collaboration agreement with the University of Bonn.

Table 3 | Impacts of a free trade scenario for cheese between CH and the USA in 2030

Scenarios	Bilateral exports to the USA (1000 tons)	Total exports from CH (1000 tons)	Swiss production (1000 tons)	Producer price for cheese (Relative change, %)	Producer price for raw milk (Relative change, %)
R0	8.79	70.49	196.70		
S1	17.01 (+8.22 / +93.47 %)	73.97 (+3.48 / +4.94 %)	197.78 (+1.08 / +0.55 %)	(+1.29 %)	(+1.29 %)
S2	15.85 (+7.06 / +80.31˚%)	69.32 (–1.17 / –1.66 %)	191.12 (–5.58 / –2.84 %)	(+1.27 %)	(-6.36 %)

Source: CAPRI model. Note: absolute and relative variations are with respect to the reference year 2030.

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