



EU School food procurement schemes

A more inclusive, educative, and ambitious project

Executive summary

The school schemes for food procurement are a European initiative in place since 1977 whose aim is to improve the quality and the variety of nutritional intake for children in school age. They represent, therefore, one branch of the preventive arm of the more general approach of the EU in its health policies by educating the next generation to healthy and balanced diets, the care of the self, and to the cultural value of food. Or, at least, they could. In fact, the public policies initiatives in this sense -of which the school schemes are part of- have largely failed to reverse the trend of increasing obesity and overweight in school-age kids in the EU, as well as educating them to a healthy diet and lifestyle.

The European Commission's legislative framework of the Farm to Fork (F2F), among other actions, foresees, during 2023, to advance a legislative proposal to review these programs *"to enhance its contribution to sustainable food consumption and in particular to strengthen educational messages on the importance of healthy nutrition, sustainable food production and reducing food waste"*¹.

In order to improve the implementation and efficacy of the programs, the following recommendations are proposed:

- **Improve inclusiveness:** the programs can only be effective if they reach out to a maximum of children enrolled in schools. The aim of the programs in this sense should be to include 100% of children who attend school for educational course and for the additional activities (cooking classes, farm visits, food tasting, etc.). Furthermore, we recommend to extend the free procurement of F&V, milk and dairy to children coming from weak socio-economic situation (two firsts' quintiles), as the current schemes allow MS to decide whether families should partly compensate for the costs. Increase the inclusiveness of the schemes will only improve their efficacy and increase the number of the participation of children from the targeted group, as well as increasing the long-term outcomes, with more children who include consumption of F&V, milk and dairy in their diets after school age.

Moreover, a truly effective **coordination amongst the actors involved in the programs** (schools, families, State, producers and other actors of the food supply chain) shall be implemented to effectively assure coherence and facilitate exchanges within the organisation of both the procurement and the educational measures.

¹ Farm to Fork Strategy, 2020

- **Even the financing amongst states:** funds should be re-calibrated based on the actual nutritional needs of pupils in member states, considering as well the socio-economic background and focus their action where most needed.
- Give more importance to **educational -accompanying- measures:** considering the very relatively low percentage of funds dedicated to the accompanying measures and their higher effectiveness compared to the distribution of F&V and milk to pupils, it can be useful to dedicate more efforts to the educational measures rather than on the provision of food, within the framework of informing pupils about diets and lifestyle that should be balanced, and include the balanced use of different raw, or minimally processed, ingredients during cooking². A more balanced distribution of funds (based on an at least 70/30 approach), could both reduce the unspent money in some countries and affect the long-term impact on future adults' approach to food and diet³.

This approach, with increased educational training, might also target and reduce the plague of food **waste** in school canteens, which is estimated to be around 19,3Kg per student per school year⁴. In this sense, it is important to notice that prevention of food waste is not mentioned as any of the objective of the schemes, and that happens even within the context of the programs. In order to reduce it, besides increasing the awareness of the problem through communication and educational activities, the procurement of food could also cover quality sweetened products (such as honey or fruit jams) and quality fats (such as olive oil for instance) to be included in the food procurement offer in order to favour the consumption of the raw products that might not be appreciated -thus, wasted- by children otherwise.

- Consider **holistic approach:** nutrition and lifestyle are not simple concepts and cannot be delivered simply through front classes, but children need to be stimulated from several inputs - both practical and theoretical- and at different levels. We recommend:
 - To focus on all children at school, from elementary schools (and pre-schools) to 15 years old.
 - To define the EU support so that it could be a lever of mobilisation of national support (public and/or private) to reach an overall budget of € 2.7 billions per year and focus it in priority on education measures benefiting all the 67 million of European children.
 - To include in the financing of the program, as it is already done in some MS, activities that cover cooking classes, multidisciplinary courses on nutrition (link to biology, seasonality, philosophy, medicine, art, etc.).
 - To give more concrete support to the actors 'on the field', responsible for the actual implementation of these programs (teachers, canteen personnel, chefs, dieticians, etc.), for example by providing training.
 - To accompany communication campaigns all along the school year, nudging students towards reconfirmation and strengthening of the messages learnt during class hours. More in general, improve the promotion and communication around this initiative.
 - To ban ultra-processed foods and competitive food (i.e., products sold in vending machines) from school environments. The scientific literature is unanimous on the

² To take the example of France, in the school year 2019/20, while only 1,3% of the funds was spent to assure F&V and milk to school canteens, 10% of students were reached by educational initiatives. In the same year, in Belgium only 36% of the budget dedicated to food provision was spent, 43% of the students were involved in educational activities under the schemes.

³ As the study of Ransley et al. (2007) shows, after an average of seven months when the procurement program is over, children come back to the baseline values of F&V consumption.

⁴ https://internationalfoodwastecoalition.org/wp-content/uploads/2021/01/IFWC_SKOOL_Report_2018.pdf

adverse effects of this type of products on health, linking their consumption to a higher risk of non-communicable diseases (such as certain types of cancers, diabetes, cardiovascular disease, etc.). Specific attention should be given to the environment attended by children i.e., avoid obesogenic environments. Moreover, in order to replace the products sold in vending machines, it should always be available, at schools, raw vegetables as snack food. Raw vegetables are the least products eaten by children and they should receive more funding.

- To incentive the development of tasty foods offered in canteens and through public procurements: the nutritionally balanced meal should be kept as the priority of public procurement and chefs in school canteens, but taste and pleasure are just as fundamental parts of eating as food. By offering healthy and nutritional-qualitative food that ‘does not taste good’, the risk is high of creating an unconscious relationship within “healthy food” and bad taste increases, and with it, the risk of disincentivizing the consumption of healthy foods in favour of less balanced, yet highly palatable, alternatives. This kind of link tend to persist even during in adulthood (De Cosmi et al. 2017). In this sense, the programs could provide continuous formation for chefs in order to make sure that they know how to make tasty recipes that are flavourful and that can be well appreciated by the kids.
- To reduce national administration burdens for educational institutes, providers of food, local administrations, notably by strengthening their digitalisation.
- To cover the totality of **local** ingredients and products during cooking classes, tasting activities, canteen menus.
- To provide a mechanism that allows schools to receive fruit and vegetables from local farmers (and, in general, local supply chain) in the closest proximity. This would have both the benefit of guaranteeing the supply of seasonal and local products, which would come from the same region where the school is located; and to create a shorter supply chain, avoiding the issue of rotten fruit, that often reaches schools.

Moreover, **it is necessary to develop a close relationship between local farmers**, who represent an important resource also in terms of knowledge for the area, **and the children**, who are the citizens of the future, **together with actors of local food supply chains** (processors, distributors, etc.).

- To extend the financing of the programmes also to private entities and foresee indirect support, such as fiscal tools (for instance, a reduction of taxation for enterprises that decide to join the programs) intended to support these kinds of measures.

When local products are not available because of geographical reasons, fruit and vegetables from the closest area where they are grown should be prioritized. For the same reason, when an EU country does not have local seasonal fruit and vegetables available, the supply must come from another EU member state.

All in all, nutritional education in schools targeting youth, notably those groups in society that are coming from disadvantaged backgrounds, is indeed just one tool to reach the long-term objective of improved health and balanced diets. However, today, considering the changes in family’s role on the eating behaviour of children, schools have even greater responsibility in shaping the future health of Europeans. First and foremost, health depends on what we eat together with on our life style.



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The school schemes for food procurement are a European initiative in place since 1977 whose aim is to improve the quality and the variety of nutritional intake for children in school age. They represent, therefore, one branch of the preventive arm of the more general approach of the EU in its health policies by educating the next generation to healthy and balanced diets, the care of the self, and to the cultural value of food. Or, at least, they could. In fact, the public policies initiatives in this sense -of which the school schemes are part of- have largely failed to reverse the trend of increasing obesity and overweight in school-age kids in the EU, as well as educating them to a healthy diet and lifestyle.

The school programs assure some procurement to school canteens of fresh fruits, vegetables (F&V), milk, and dairy products. They focus on fresh F&V and plain milk with the possibility to extend it to processed products (such as fruit juices, soups, milk drinks, etc.). All along, seasonality, variety, availability, health, and environmental aspects have to be considered. Moreover, the schemes can support educational measures such as traditional lessons or the creation of school gardens, visits to farms, tasting and cooking classes, etc. The aim of the programs, together with their educative measures, is to improve students' knowledge around food products and agri-food supply chains.

The European Commission's legislative framework of the Farm to Fork (F2F), among other actions, foresees, during 2023, to advance a legislative proposal to review these programs *"to enhance its contribution to sustainable food consumption and in particular to strengthen educational messages on the importance of healthy nutrition, sustainable food production and reducing food waste"*⁵. The current EU legal framework⁶, effective since 2017, combines two previous schemes (for milk, and fruit & vegetables, respectively into force since 1977 and 2009). Every seven years it allocates around €1.75 billion to Member States (€250 million per school year)⁷ – to be divided into different percentages for the provision of milk and fruits & vegetables -, split among them based on their school-age population⁸. On top of that, every Member State can decide to add any amount of money they decide from national budgets.

In order to make it effective, every Member State has to draw a national plan for the next 6 years in which strategies, measures, and the list of products that the state intends to finance under the scheme have to be outlined. It is up to the MS to monitor each year the implementation of the activities.

⁵ Farm to Fork Strategy, 2020

⁶ [EU regulation 1308/2013](#); [EU regulation 1307/2013](#); [EU implementing regulation 2017/39](#); [EU delegated regulation 2017/40](#).

⁷ After the withdrawal of the UK from the EU, the total EU budget for the scheme amounts to €220,8 million per school year (of which €130,6 million for F&V and €90,1 million to milk).

⁸ The last program approved for the period 2017-23 included a total of €250 million per school year of which €150 million for F&V and the remaining €100 million for milk.

Due to the renewed impulse given by the Farm to Fork strategy, the European Commission is planning to revise these schemes during its mandate. In 2021, the European Parliament (EP) Committee on Agriculture (ComAgri) took its own initiative for a revision of these programs. Belgian Marc **Tarabella**, S&D member is the rapporteur on this file. He submitted the report during Spring 2022, and ComAGRI is supposed to vote on it during February 2023.

Not enough of it

Several institutions and reports (see below) that focus on the consumption of recommended portions of fruit and vegetable and milk products amongst the population (namely 5 to 6 and 3 to 4 per day) point at the direction that EU citizens at large struggle to reach the threshold that would improve their health. A recent survey from Eurostat⁹ showed that the recommended daily portions of fruit and vegetables are not attained by 88% of the population. Among EU member States, the highest daily intake was reported in Ireland (33% of its people ate at least 5 portions of fruit and vegetable), the Netherlands (30%), Denmark (23%), and France (20%). The lowest daily intake was found in Romania (2%), followed by Bulgaria and Slovenia (both 5%) and Austria (6%).

When they submitted their national plans for the 2017 - 2023 school years, all Member States described the baseline situation as not satisfactory, with the majority of pupils that did not reach the suggested daily intakes, and a trend that is worrisome. According to the latest COSI -Childhood Obesity Surveillance Initiative- report¹⁰, on average, 42,5% of children consumed fruit, while 22,6% consumed vegetables on a daily basis, and that many adolescents do not consume neither on a daily basis.

Analysis of the health conditions of European children (Ahrens and Branca, 2021; Williams et al. 2020) underline the increasing tendency in childhood obesity, and a trend of reduced physical activity, in particular for children coming from the most disadvantaged social groups. Furthermore, the food that is consumed is more and more processed and the share of ultra-processed products is increasing dramatically¹¹. Often times consumers (and parents) tend to turn towards 'ready-to-eat' dishes that need just few minutes of warming up in the microwave before eating.

Thus, the gap between individuals and their diet, particularly in terms of knowledge of food composition, is getting wider. This reduced knowledge of the foods consumed could affect the understanding and application of dietary guidelines communicated on the basis of raw or minimally processed food groups.

As the French third national study of the individual consumption underlines,

“For fruit and vegetables, as for milk and dairy products, there are three main challenges:

- Get children who do not usually consume these products to eat them by diversifying their eating habits with raw products (fruit, vegetables, milk and dairy products) when children's consumption is mainly of highly processed products (cake for snacks, for example);*
- Increase the diversity of products consumed by children, particularly with quality products. The quality and diversity of products are likely to increase children's appetite for them;*

⁹ <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220104-1>

¹⁰ <https://www.euro.who.int/en/health-topics/disease-prevention/nutrition/activities/who-european-childhood-obesity-surveillance-initiative-cosi/cosi-publications/who-european-childhood-obesity-surveillance-initiative-cosi-report-on-the-fourth-round-of-data-collection,-20152017-2021>

¹¹ It is worth noticing, thou, that processed foods of industrial making do not necessarily have negative connotation and can bring, sometimes, consumers to discover and taste new (local) products and flavors (such as cheeses, for instance).

- Encourage pleasure in the consumption of fruit and vegetables, milk and dairy products in order to increase the consumption of these products by children, who consume them regularly, but in insufficient quantities”.

In this context, it is interesting to notice how, among MS, the rate of the implementation of the programs – how much of the EU allocated funds are spent – changes drastically. As an example, France has always been showing low percentages of implementation rates (an average that goes below 10%), reaching its lowest point during the 2019/20 school year (only 1,3% of funds were used). Other countries, such as the Baltics, Germany, and some Eastern European States have high expenditure rates (for instance, Czech Republic used 86% of the funds in 2018/19, and 87% during 2019/20). The percentage of used funds in the rest of MS varies (an average of 25% in Portugal, 37% in Belgium, 75% in Italy, etc.). Proportionally, the number of schools that are receiving the funds so to put into practice the schemes mirrors their financial implementation: in France, only 4 398 out of the 61 892 institutes that had the right to apply for it¹² took part in the aid schemes in 2018/19 (7,1%), whereas in Germany 61% of schools implemented it, and 95% of the Czech ones.

In the last recorded three years of the program (school years 2017/18 to 2019/20), the total EU children enrolled in schools (pre-schools, primary and secondary education) amounted to 146 809 627 (Figure 1). However, only 52 433 045 (35,7%) have been actually included in the fruit & vegetable and milk school schemes. The Member States that most took profit of the schemes were Luxembourg (98% of children enrolled in school received the treatment), Romania (86%), Czechia (85%); on the other side of the spectrum, the Member States in which the least relative number of children were touched were Ireland (16%), Italy (13%), France (3,8%).

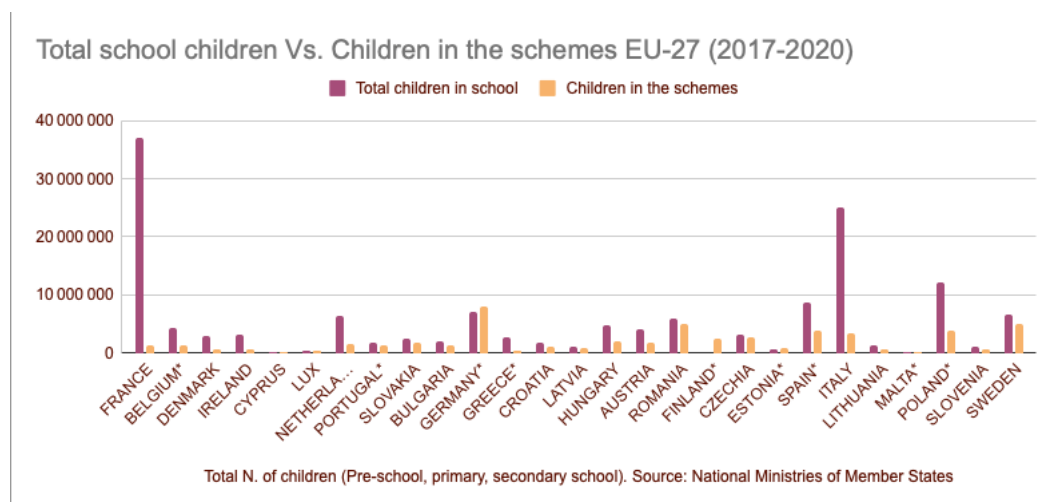


Figure 1: “Total school children vs. Children in the schemes EU27 (school years 2017/18 to 2019/20)”, Source: National Ministries of EU Member States

*Incomplete data

¹² “nurseries, pre-schools or primary or secondary-level educational establishments”, art. 22 of regulation 1308/13.

Effectiveness of the program

In order to understand the effectiveness of these programs -and assess, therefore, the usefulness of public expenditure-, data from EU countries on the incidence and the morbidity of health problems in school age children (namely obesity and overweight¹³) have been analyzed. Children in Europe are mainly affected by Type 1 diabetes (Patterson et al., 2009; Candler et al., 2018), a disease that is mainly inherited. However, the factors that can lead to the development of health problems later in life are increasingly persistent.

School environments play a fundamental role for the development of children healthy, sustainable habits and taste education, thus, are essential for the prevention of childhood obesity and overweight - a situation that could lead to the development of type 2 diabetes and other health complications later in life (Deshmukh-Taskar et al., 2006; Baker et al., 2007, Quek et al., 2017)-. Data from the World Health Organization (WHO) concerning the European Region show the impact of the level of education and the prevalence of obesity among the population, underlying the reverse correlation that links the two variables: the more educated, the less likely to live with obesity (Figure 2).

Obesity & overweight cases in school-age children (5-19 years old) have been on the rise over the past decades (Figure 4) with latest figures assessing at around 13% the rate of childhood obesity (children aged 7-8) in Europe (OECD, 2018). If the 5-9 years old group is considered, the percentage for obesity reduces to 11.6%, but the one related to **overweight (including obesity) increases to reach almost 30% of children**. Despite a recent stabilization of the trends, the increase in children's excessive weight in most of the European countries calls for the strengthen of public measures to address this epidemic. Southern European countries are home of the highest percentage of obese and overweight children of the region, but are also the ones that have been showing fast progress in regression of these percentages (Wijnhoven et al., 2014).

¹³ Other non-communicable diseases (such as cardiovascular disease, metabolic disease, hypertension, etc.) develop in a later stage of life -the ones present in children are mainly due to genetic & congenital causes-. Obesity & overweight are situations that impact the future health of the person long after childhood and are strongly related to the environment, thus, intervention can be more effective.

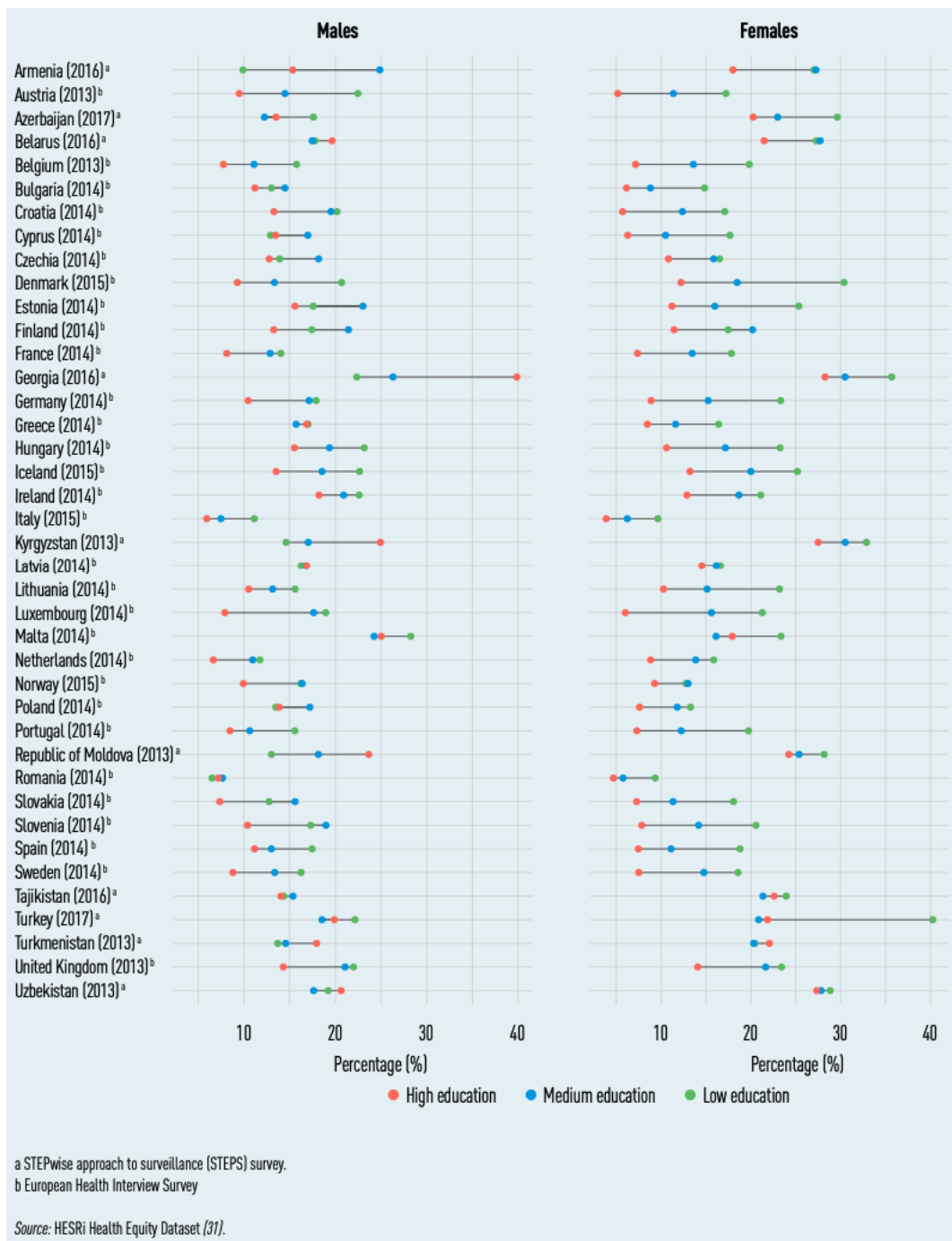


Figure 2: Percentage of adults living with obesity (age-standardized), by education level.

Source: WHO European regional Obesity Report 2022. Copenhagen: WHO Regional Office for Europe; 2022.
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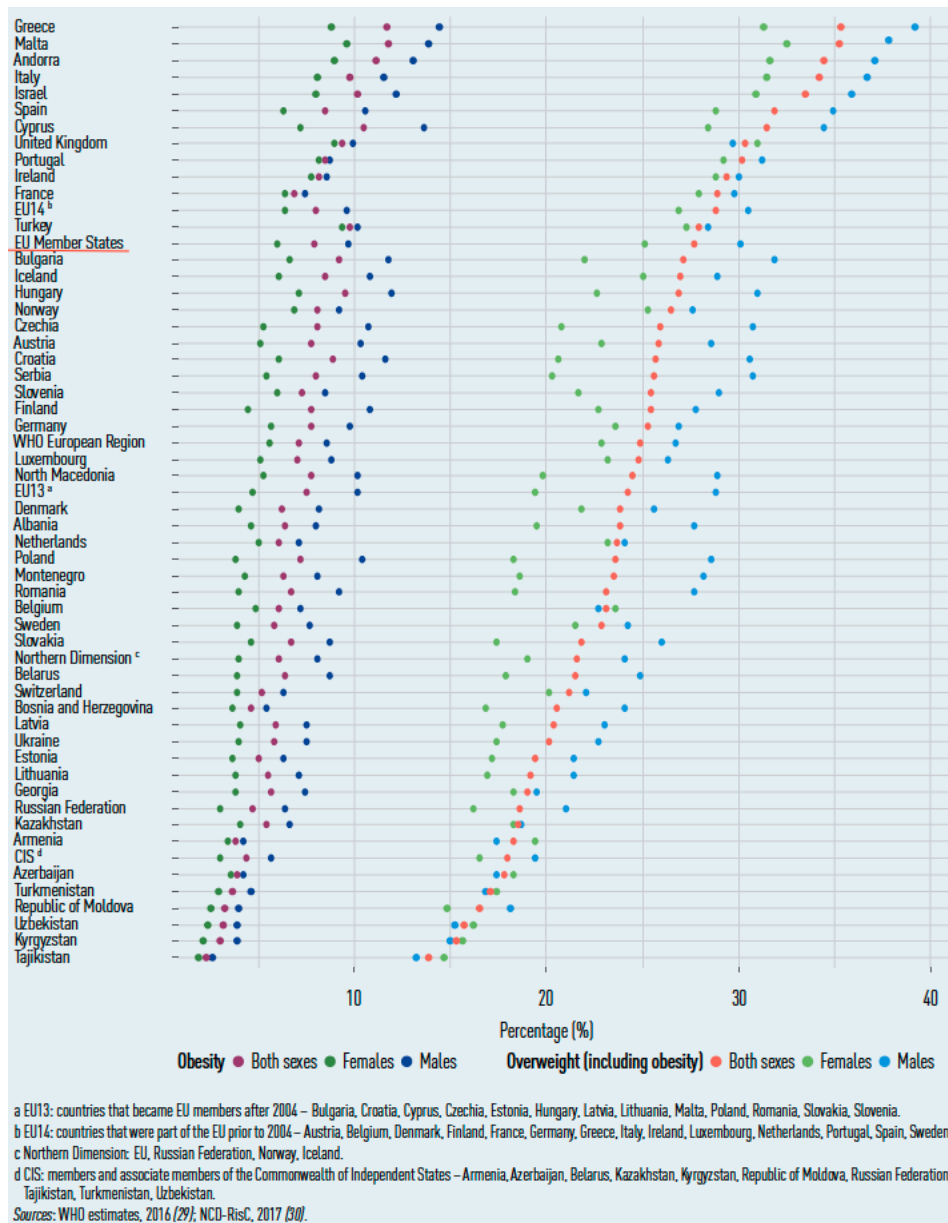


Figure 3: Prevalence of overweight and obesity amongst children and adolescents aged 10-19 years in the WHO European Region (2016).

Source: WHO European regional Obesity Report 2022. Copenhagen: WHO Regional Office for Europe; 2022.
License: CC BY-NC-SA 3.0 IGO

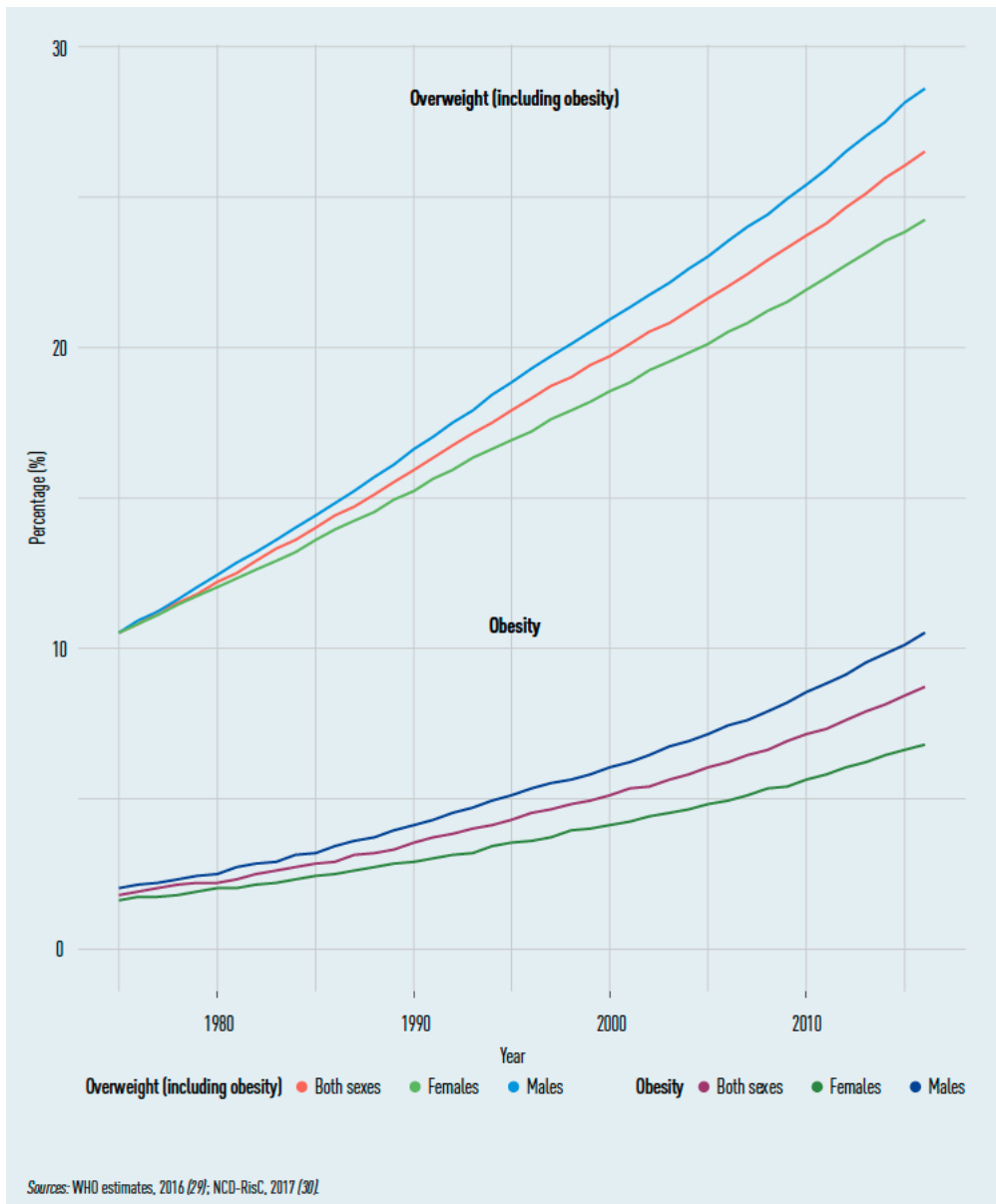


Figure 4: Prevalence of overweight and obesity among children and adolescents aged 5-19 years in the WHO European Region, by sex (1975-2016).

Source: WHO European regional Obesity Report 2022. Copenhagen: WHO Regional Office for Europe; 2022.
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The school milk scheme has been in place since the late 1970's, while the fruit and vegetable initiative since 2009. If the historic data on childhood overweight and obesity (Figure 4) is not enough to establish an observational correlation between the two variables, it certainly confirms that these programs have not contributed to stop, nor to slow down, the trend of increasing overweight and obesity in school-age children. More research on the causal relationship between the introduction of the fruit and vegetable scheme and the rate of childhood overweight and obesity in the EU member states is needed to assess any potential correlation.

Other factors influencing diet

Even if school environments play an important role in kids' general health and food education (notably for their future), familiar, societal, economical aspects have shown to have a strong overall influence in their dietary patterns (de Fragas Hinnig et al., 2018).

Data from the WHO (European Regional Obesity report 2022) show that *“the prevalence of overweight was higher among children whose parents had lower educational status”*, and that *“in the majority of European countries, a greater prevalence [of obesity and overweight] was found in individuals from lower-income families”*. The analysis of Inchley et al., (2020) confirms this statement, reporting that *“strong social inequalities were observed, with more affluent boys and girls less likely to be overweight or obese”*.

Social groups living with lower financial availability have fewer tools to provide their kids with healthy food and knowledge concerning healthy lifestyles and diet education. Thus, **schools become one, if not the only, source from where children can learn about these topics and, consequently, bring this knowledge back to their families, in a process of reversing the traditional trend of family-educational patterns.** After all, as all the subjects that are taught at school to children are “externalized” by the public educational system (and not taught by the families), nutrition and lifestyle are topics that can be covered by the public service as well.

This kind of actions become even more urgent if considered that, according to the WHO, prevalence in obesity in the European area nearly tripled since 1975. If a situation of overweight and obesity in childhood is likely to be prolonged in adulthood as well (as Serdula et al., 1993 confirm), there is a clear problem that has to be solved in how children are educated to food and nutrition.

Best in Class Vs. worst in class

As Figure 1 shows, the Czech Republic (CZ), Romania (RO), and Germany (DE) can be considered the ‘best students’ in applying the schemes and in making a valuable use of the funds at disposal by reaching a high number of students and in using a big chunk of the available funds.

CZ, RO, DE (for which the state of Berlin-Brandenburg is used as a reference) all added national public funds to the ones already made available by the EU program (depending on the State, the additional funds were higher than the EU ones, as it is the case of Romania, or lower); the programs run from a minimum of six months to a maximum of the whole school year, with a frequency of distribution that goes from once a week in CZ to a daily distribution in DE and RO; the targeted age group of pupils also changes in member states, but the range goes from children of 1 year of age up until 18 year old. What they all shared are the accompanying measures that are planned alongside the distribution of milk, F&V, namely:

- Tasting of fruits, vegetables, milk and milk products so to make kids discover new products and varieties according to the seasons of the year;
- Field trips in farms, food markets, production, processing, and distribution sites;
- Cooking courses and competitions;
- School gardening;
- Lessons on food, nutrition, and healthy lifestyle;

On the other hand, France is the country where the least number of students have been reached by the programs (compared to the total kids attending school) and where the least amount of funds was used. The main differences with RO, CZ and DE is that in France, the programs are not supported with additional national funds, that the eligible costs are reimbursed partially (whereas in RO and CZ are distributed free of charge), and that accompanying measures are less interactive and diverse, and follow a more traditional approach of front classes (they do not foresee activities such as farm visits, gardening, cooking classes and competition, but only front lessons on the programs and the Common Agricultural Policy), concentrating on the theoretical part of learning and leaving behind the practical side.

The engagement of the analyzed member states can also be seen in the average money spent per kid (how much, on average, the member states have invested in each kid in financial terms, i.e., average total financing per year over the total average number of school pupils). States as Romania reach 38,3€/kid, Czech Republic 7,5€/kid, France only 2,8€/kid¹⁴ per year (a relative high increase compared to the last reform of the schemes - in 2014-, when on average the expenditure was between 50 and 80 cents per child).

This information underlines specific fallouts of the programs, notably that **funds are not equally distributed and not equally implemented**, and, most importantly, do not manage to reach the target-groups that are meant to, i.e., children coming from lower socio-economic groups that do not meet recommendations for healthy diets. As the report of the EU Court of Auditors¹⁵ puts it: *“an analysis by Member States not only reveals that the scheme does not target resources at areas of greater need, it even shows that, on the whole, the Member States receiving the most from the scheme are those where the consumption of milk products is already highest and, consequently, needs are less significant and less pressing”*. The same assessment reports that *“on average, the six Member States with the highest per capita consumption of milk products receive 3,5 times more [...] aid per capita than the 10 States with the lowest consumption rates”*. The evaluation of the several rounds of programs (1999, 2011, etc.) are repeating themselves underlying the low ‘take up rate’ and their relatively unattractiveness, and *“a relatively poor level of efficiency and effectiveness in reaching the target population”*. One of the main reasons that the review brings up is the *“disproportioned burden of administration”* that school bodies have to face in order to access the programs, besides the **insufficient subsidies** that *“only cover a small fraction of the costs of the products distributed”*, resulting, according to the report of the Court of Auditors, in a deadweight effect¹⁶. Little improvements have been done in the schemes for fruits, where the financing is higher than the one dedicated to milk (up to 75% of EU co-financing), and distribution of fruits is completely free of charge, therefore allowing all pupils to benefit and reducing the time-consuming activity of collecting money from families. Moreover, observations in Member States programs have underlined how consumptions changes drastically when free of charge products are offered to pupils, even compared to a substantial difference in sale prices.

¹⁴ Calculations for **Romania**: total financial investments (EU + national funds) for the six-year programmed period over the average number of children attending school between 2017 and 2020 = (446 660 832/6) / (5 829 018/3).

Calculation for **Czech Republic**: total financial investments (EU + national funds) for the six-year programmed period over the average number of children attending school between 2017 and 2020 = (48 499 935/6) / (3 226 495/3).

Calculation for **France**: total financial investments (EU + national funds) for the six-year programmed period over the average number of children attending school between 2017 and 2020 = (210 681 978/6) / (37 137 588/3).

¹⁵ https://www.eca.europa.eu/Lists/News/NEWS1110_24/NEWS1110_24_EN.PDF

¹⁶ Citing from the report: *“Deadweight occurs where a measure is used to support beneficiaries who would have made the same choice in the absence of aid. In such cases, the outcome cannot be attributed to the policy, and the aid paid to the beneficiary has had no impact. Thus, the share of expenditure which generates deadweight is ineffective by definition, because it does not contribute to the objectives”*.

Conclusions & Recommendations

The main complains coming from both producer organizations and schools in the EU concern the **high administrative burden** that the national authorities impose, together with several modifications of the programs, and the complexity of the delivery model. Moreover, focusing on the French case -being the most representative one-, portions are not always fit for children, the list of available products that can be supplied to canteens is not comprehensive, the distribution methods are restrictive, and, again, the administrative pressure is very high.

In addition, the lion share of the budget is dedicated to the supply of “*fruit and vegetables, processed fruit and vegetables, and banana*”, milk and dairy, but also to the costs related to “*logistics and distribution, equipment, publicity, monitoring, evaluation and accompanying measures [...] including measures raising public awareness*”, whereas only **3%** of the EU-wide 2018/19 budgeted was dedicated to **educational tools** (same percentages during 2017/18).

It is worth repeating that during the last school years, just a bit over one third (35,7%) of enrolled children in the EU was actually included in the procurement of these products. Depending on the member state, they were exposed to fruit, vegetables, milk and dairy products at least once a day or once a week, for one semester or the whole school year. However, the simple exposure and offer of these products in a non-consistent way is not effective enough to convince children to keep up dietary habits, as the study of Ransley et al. (2007) points out. In fact, the researchers found that after an average of seven months after the end of the procurement program, children came back to baseline values of F&V consumption.

In order to improve the implementation and efficacy of the programs, the following recommendations are proposed:

- **Improve inclusiveness:** the programs can only be effective if they reach out to a maximum of children enrolled in schools. The aim of the programs in this sense should be to include 100% of children who attend school for educational course and for the additional activities (cooking classes, farm visits, food tasting, etc.). Furthermore, we recommend to extend the free procurement of F&V, milk and dairy to children coming from weak socio-economic situation (two firsts’ quintiles), as the current schemes allow MS to decide whether families should partly compensate for the costs. Increase the inclusiveness of the schemes will only improve their efficacy and increase the number of the participation of children from the targeted group, as well as increasing the long-term outcomes, with more children who include consumption of F&V, milk and dairy in their diets after school age.

Moreover, a truly effective **coordination amongst the actors involved in the programs** (schools, families, State, producers and other actors of the food supply chain) shall be implemented to effectively assure coherence and facilitate exchanges within the organisation of both the procurement and the educational measures.

- **Even the financing amongst states:** funds should be re-calibrated based on the actual nutritional needs of pupils in member states, considering as well the socio-economic background and focus their action where most needed.
- Give more importance to **educational -accompanying- measures:** considering the very relatively low percentage of funds dedicated to the accompanying measures and their higher effectiveness compared to the distribution of F&V and milk to pupils, it can be useful to dedicate more efforts to the educational measures rather than on the provision of food, within the framework of informing pupils about diets and lifestyle that should be balanced, and

include the balanced use of different raw, or minimally processed, ingredients during cooking¹⁷. A more balanced distribution of funds (based on an at least 70/30 approach), could both reduce the unspent money in some countries and affect the long-term impact on future adults' approach to food and diet¹⁸.

This approach, with increased educational training, might also target and reduce the plague of food **waste** in school canteens, which is estimated to be around 19,3Kg per student per school year¹⁹. In this sense, it is important to notice that prevention of food waste is not mentioned as any of the objective of the schemes, and that happens even within the context of the programs. In order to reduce it, besides increasing the awareness of the problem through communication and educational activities, the procurement of food could also cover quality sweetened products (such as honey or fruit jams) and quality fats (such as olive oil for instance) to be included in the food procurement offer in order to favour the consumption of the raw products that might not be appreciated -thus, wasted- by children otherwise.

- Consider **holistic approach**: nutrition and lifestyle are not simple concepts and cannot be delivered simply through front classes, but children need to be stimulated from several inputs - both practical and theoretical- and at different levels. We recommend:
 - To focus on all children at school, from elementary schools (and pre-schools) to 15 years old.
 - To define the EU support so that it could be a lever of mobilisation of national support (public and/or private) to reach an overall budget of € 2.7 billions per year and focus it in priority on education measures benefiting all the 67 million of European children.
 - To include in the financing of the program, as it is already done in some MS, activities that cover cooking classes, multidisciplinary courses on nutrition (link to biology, seasonality, philosophy, medicine, art, etc.).
 - To give more concrete support to the actors 'on the field', responsible for the actual implementation of these programs (teachers, canteen personnel, chefs, dieticians, etc.), for example by providing training.
 - To accompany communication campaigns all along the school year, nudging students towards reconfirmation and strengthening of the messages learnt during class hours. More in general, improve the promotion and communication around this initiative.
 - To ban ultra-processed foods and competitive food (i.e., products sold in vending machines) from school environments. The scientific literature is unanimous on the adverse effects of this type of products on health, linking their consumption to a higher risk of non-communicable diseases (such as certain types of cancers, diabetes, cardiovascular disease, etc.). Specific attention should be given to the environment attended by children i.e., avoid obesogenic environments. Moreover, in order to replace the products sold in vending machines, it should always be available, at schools, raw vegetables as snack food. Raw vegetables are the least products eaten by children and they should receive more funding.
 - To incentive the development of tasty foods offered in canteens and through public procurements: the nutritionally balanced meal should be kept as the priority of public

¹⁷ To take the example of France, in the school year 2019/20, while only 1,3% of the funds was spent to assure F&V and milk to school canteens, 10% of students were reached by educational initiatives. In the same year, in Belgium only 36% of the budget dedicated to food provision was spent, 43% of the students were involved in educational activities under the schemes.

¹⁸ As the study of Ransley et al. (2007) shows, after an average of seven months when the procurement program is over, children come back to the baseline values of F&V consumption.

¹⁹ https://internationalfoodwastecoalition.org/wp-content/uploads/2021/01/IFWC_SKOOL_Report_2018.pdf

procurement and chefs in school canteens, but taste and pleasure are just as fundamental parts of eating as food. By offering healthy and nutritional-qualitative food that ‘does not taste good’, the risk is high of creating an unconscious relationship within “healthy food” and bad taste increases, and with it, the increased risk of disincentivizing the consumption of healthy foods in favour of less balanced, yet highly palatable alternatives. This kind of link tend to persist even during in adulthood (De Cosmi et al. 2017). In this sense, the programs could provide continuous formation for chefs in order to make sure that they know how to make tasty recipes that are flavourful and that can be well appreciated by the kids.

- To reduce national administration burdens for educational institutes, providers of food, local administrations, notably by strengthening their digitalisation.
- To cover the totality of **local** ingredients and products during cooking classes, tasting activities, canteen menus.
- To provide a mechanism that allows schools to receive fruit and vegetables from local farmers (and, in general, local supply chain) in the closest proximity. This would have both the benefit of guaranteeing the supply of seasonal and local products, which would come from the same region where the school is located; and to create a shorter supply chain, avoiding the issue of rotten fruit, that often reaches schools.

Moreover, **it is necessary to develop a close relationship between local farmers**, who represent an important resource also in terms of knowledge for the area, **and the children**, who are the citizens of the future, **together with actors of local food supply chains** (processors, distributors, etc.).

- To extend the financing of the programmes also to private entities and foresee indirect support, such as fiscal tools (for instance, a reduction of taxation for enterprises that decide to join the programs) intended to support these kinds of measures.

When local products are not available because of geographical reasons, fruit and vegetables from the closest area where they are grown should be prioritized. For the same reason, when an EU country does not have local seasonal fruit and vegetables available, the supply must come from another EU member state.

All in all, nutritional education in schools targeting youth, notably those groups in society that are coming from disadvantaged backgrounds, is indeed just one tool to reach the long-term objective of improved health and balanced diets. However, today, considering the changes in family’s role on the eating behaviour of children, schools have even greater responsibility in shaping the future health of Europeans. First and foremost, health depends on what we eat together with on our life style.

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