

PUBLIC POLICY AND

Health

The Influence of Economy-Based Agri-Food Policies on Diet and Weight: Synthesis Report



Background

This edition of the Public Policy and Health series is a synthesis of a scientific advisory produced by Catherine Gervais of the Institut national de santé publique du Québec (INSPQ)¹. The scientific advisory focuses on the influence of economy-based agri-food policies on the population's diet and weight. More specifically, it examines the impacts of these policies and economic measures on the price, availability and nutritional quality of foods and, when documented, their impacts on the population's diet and weight. This information helps identify the most appropriate avenues for interventions in Québec. The scientific advisory was submitted to the ministre de la Santé et des Services sociaux for the purposes of implementing article 54 of the *Loi sur la santé publique*; it is part of a collection of six reports on agriculture published by the INSPQ.

This synthesis is produced by INSPQ's Équipe politiques publiques and is intended to facilitate knowledge translation to a broad audience.



Highlights

Obesity's increasing prevalence is of concern because of its impacts on the population health and its associated costs. To promote healthy public policies, this scientific advisory documents the influence of economy-based agri-food policies that can affect the population's diet and weight. To this end, the following economic measures are reviewed: agricultural subsidies, trade policies, agricultural research and development programs, agricultural promotion programs, agricultural initiatives to supply institutions such as agricultural surplus and Farm-to-School programs and, lastly, price interventions.

In light of the information compiled, this scientific advisory identifies three promising avenues for interventions to guide agri-food policies:

- Increase the number of farmer's market offering fruits and vegetables, especially in disadvantaged areas
- Develop processing policies that correspond to public health objectives
- Develop school programs that offer fruits or vegetables and milk

¹ Readers who would like more details or full bibliographic references can consult the full report in French on the following Web site:
www.inspq.qc.ca/publications/default.asp?NumPublication=1343.

Introduction

Increase in population weight and substantial costs

The proportion of obese individuals has increased dramatically over the past few decades. In Québec, obesity prevalence has doubled in less than 20 years. In 2004, 56% of Québec adults had excess weight; 34% were overweight and 22% were considered obese. This trend is of concern because obesity is a significant risk factor for a number of chronic diseases. A combination of environmental and individual risk factors explains the high number of people with excess weight in Québec, like elsewhere in the world; these factors include, for instance, the economic context, the built environment, a sedentary lifestyle, education level and heredity.

The economic impact of weight-related issues is also substantial. The direct costs attributable to obesity and overweight in Canada were estimated at \$6 billion in 2006, with 66% attributable to obesity alone. This corresponds to 4.1% of total health expenditures in Canada. In Québec, obesity could result in health costs of up to \$816 million in 2011-2012.

Cooperative action in the agriculture and health sectors

Several researchers have recognized the importance of acting on 'obesogenic' environments given that our environments are not conducive to the adoption of healthy lifestyle habits and in the face of the limited effectiveness of measures that foster health education or management of individuals with excess weight. Since World War II, our environments and lifestyles have profoundly changed, and only rarely have contemporary agri-food policies been consistent with health policies. Agricultural policies were first implemented with the goal of providing enough food to consumers, maintaining reasonable market prices, and ensuring that agricultural producers have equitable and stable incomes. According to some experts, the lack of an integrated approach with health reduces effectiveness and complicates implementation of various policy instruments that can lower the prevalence of obesity in the population.

Moreover, the agri-food industry is often singled out as contributing to overeating, to the advent of junk food, to overuse of 'healthy' logos, to abusive marketing practices that target children, and to the promotion of high-calorie,

nutrient-poor diets. Although all these issues are pertinent to the fight against obesity, this scientific advisory focuses only on the influence of economy-based agri-food policies on diet and weight. Therefore, the policies studied herein represent only part of the range of agri-food actions that can be included in a strategy for the promotion of healthy lifestyle habits and the prevention of obesity.

Assessing the effects of health policies

An intersectoral collaborative approach would ultimately enable actors from the agri-food sector to stand out by the quality of their products. Also, Québec's agri-food decision makers would benefit from the expertise of numerous health experts, particularly concerning the determinants of the nutritional quality of foods or the best methods to evaluate these determinants. According to some experts, in the same way that the Canadian policymaking process is subject to environmental impact assessments, agri-food policies should be developed with a preoccupation for health in order to maximize their effects on the diet of the population. Therefore, it is necessary to coordinate political actions and to examine public policies in terms of health and nutrition.

Québec's Agri-food Context

Proliferation of intermediaries between producers and consumers

Interventions such as agricultural subsidies have an unquestionable impact on the agri-food market; however, their influence on consumers is not as clear. For instance, almost all studies considered in this scientific advisory note that imperfect price transmission between producer and consumer greatly limits the effect of agricultural subsidies on food prices. Not only are most agricultural products processed and distributed by a variety of intermediaries, processors, secondary processors, wholesalers and retailers, or restaurants before reaching consumers, but these products also account for a small part of the final value of the food product. For example, Figure 1 shows a model of various fresh fruit and vegetable distribution networks in Québec. Even products that are eaten raw, such as local fruits and vegetables, must go through the same distribution channels; therefore, price transmission from production to consumption is imperfect.

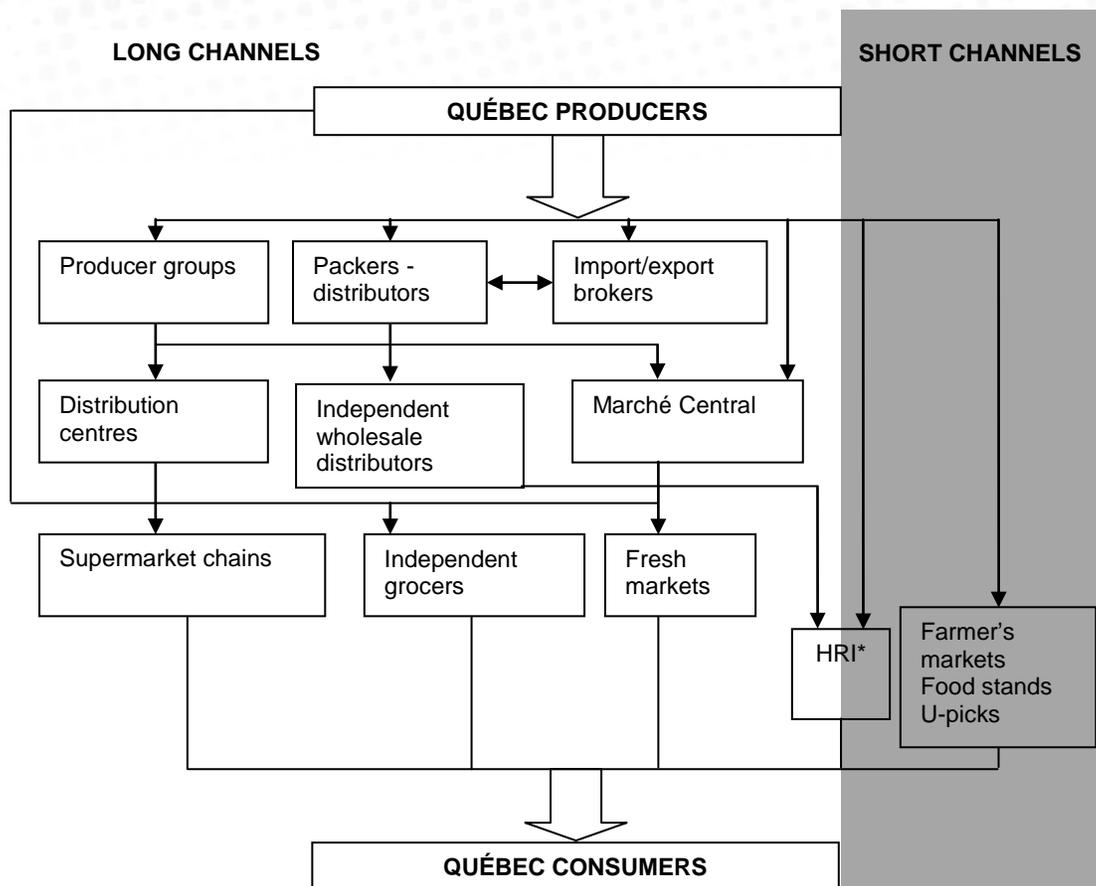


FIGURE 1 DISTRIBUTION OF FRUITS AND VEGETABLES IN QUÉBEC

* Hotels, restaurants and institutions.

An industry facing an open market

To assess possible avenues for intervention for Québec, it is important to remember that all links in the province's agri-food network operate in an open market which is across North America for most products except products marketed through the agricultural supply management system whose market is limited to Canada. Consequently, Québec's agricultural policies only have minimal influence on the price of food. The province's agricultural sector is, in fact, a price taker in the market since it is not a large enough player in the North American market to influence prices. In most cases, regardless of the type of policies used, market prices of agricultural and agri-food products are determined by factors that do not reflect Québec realities. This situation implies that Québec foods compete with foreign products to fill orders received from processors or to access supermarket shelves, even though weather conditions are less favourable to production.

Globalization of markets also limits the capacity of countries to impose specific measures on local agri-food businesses. The processed food market is an open one in North America. Therefore, taxing only Québec food processing companies on an ingredient—salt, for example—would undermine their competitiveness with products imported from other provinces or the United States, and with no guaranteed effect on the final consumption of this ingredient.

Influence of Economic Measures on the Population's Diet

Several experts have noted that a combination of multiple health, policy, regulatory and economic interventions offers the best chance of successfully improving eating habits and, ultimately, population health. The contribution of public policies from the agri-food sector thus depends on their complementarity with other strategies implemented to promote healthy lifestyle habits and obesity prevention.

From a viewpoint of complementarity, Figure 2 presents an analytical framework illustrating the influence of various types of agri-food policies in the context of healthy lifestyle promotion and obesity prevention. Implementing an agri-food policy is not considered to be a factor that can have a direct influence on lifestyle habits, but an intermediate variable that can act on three determinants of eating

habits: price, availability and nutritional quality. Some variables, such as the proliferation of intermediaries, globalization of markets, the technology boom, or the extent of the food processing sector, make it difficult to directly isolate the impact of national agri-food policies on the population's diet or weight.

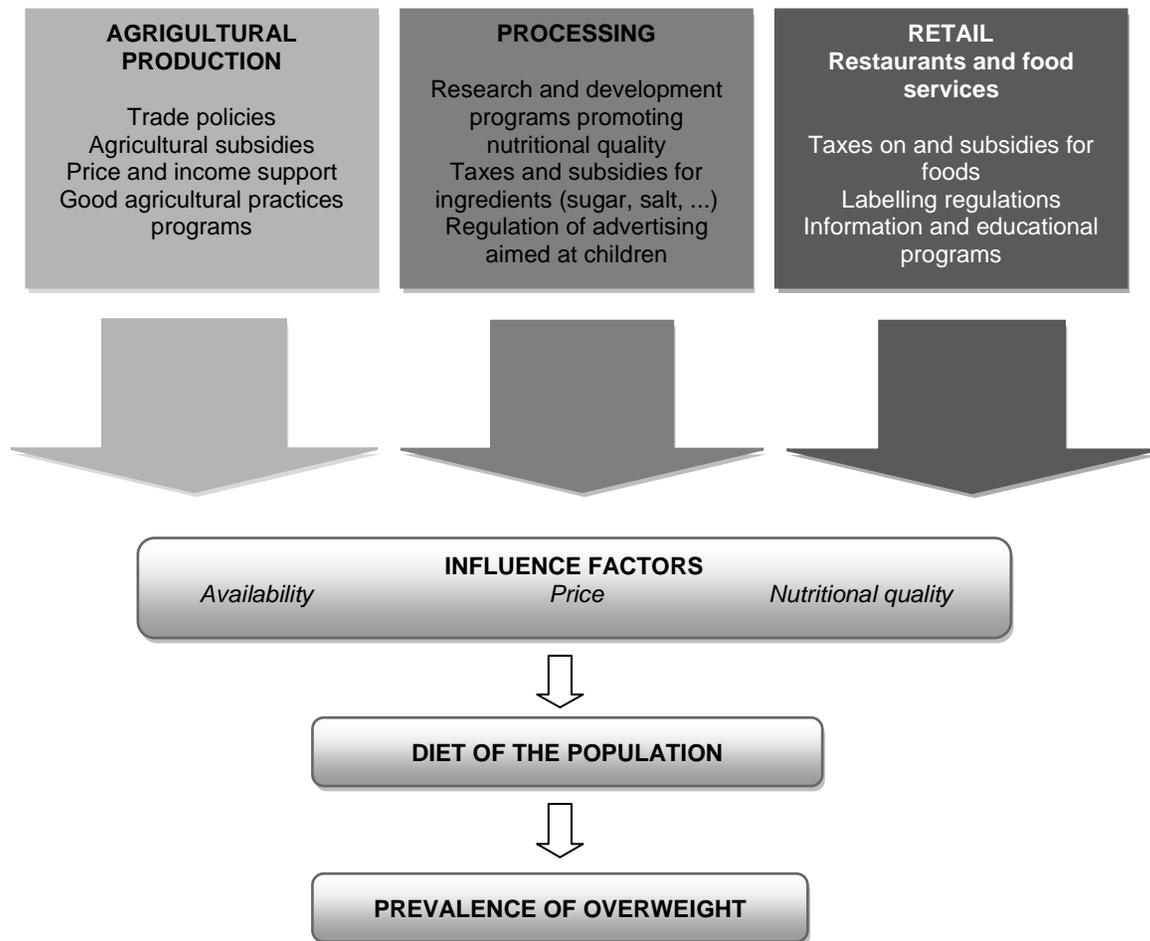


FIGURE 2 INFLUENCE OF AGRI-FOOD POLICIES ON DIET AND WEIGHT

Evaluations of the overall impact of six types of measures are presented here. These measures are agricultural subsidies, trade policies, agricultural research and development programs, agricultural promotion programs, agricultural initiatives to supply institutions such as agricultural surplus and Farm-to-School programs and, lastly, price interventions.

Agricultural subsidies

Agricultural subsidies include a set of price support programs for agricultural commodities or income support programs for agricultural producers and more complex agricultural policies, such as the European Union

Common Agricultural Policy. The significance of evaluating these tools derives from statements made by some obesity experts that agricultural subsidies have contributed considerably to the obesity epidemic by encouraging abundant production of low-cost agricultural commodities used in sweet and fatty foods. They also suggest that subsidies for healthier foodstuffs such as fruits and vegetables could help reduce the prevalence of obesity. The economic literature reviewed for this scientific advisory does come to the same conclusions. Rather, the literature shows that lower agricultural product market prices do not necessarily encourage greater consumption of processed food products.

However, it is acknowledged that agricultural subsidies have a dampening effect, albeit modest, on the price of agricultural commodities. This situation can be explained in part by the fact that agricultural subsidies inevitably influence producers' choice of production. Once these choices are made, even if they favour subsidized production sectors, the resulting impact on prices is still not passed on directly on to consumers. Consumers rarely buy non-processed foods, with the notable exception of fresh fruits and vegetables. Even in this case, consumers do not usually purchase these items from agricultural producers, but rather from larger food distribution channels. Other agricultural products are mostly bought by food processors. Therefore, agricultural commodities are only one farm input among others used to produce the processed foods found on supermarket shelves. Lower prices that result from agricultural subsidies, which are passed on to processors and early adopters of these commodities, can only have a minimal impact on production costs of food products distributed for retail sale.

The issue of the impact of agricultural subsidies on food availability is often dealt with indirectly in the scientific literature. For example, fruit and vegetable producers are often confronted with a shortage of workers, which acts as a barrier to production. Assistance given to these producers to overcome this problem could be considered as an intervention that would increase availability of this product category. However, increased availability of on-farm fruits and vegetables does not guarantee that consumers have access to them. In this sense, one author proposes that bringing consumers and farmers closer together could be an interesting avenue to increase consumption of some foods. The presence of public markets offering fruits and vegetables could have a positive effect on the availability of these products in urban areas. In a context where fresh produce is not always accessible, particularly in certain disadvantaged neighbourhoods, another interesting alternative to look at is the implementation of incentives designed to compensate agricultural producers who wish to set up stalls in these locations.

Trade policies

Trade policies are measures included under bilateral and multilateral trade agreements. The latter can also be used to protect an agri-food sector or encourage trade liberalization of certain products between states. These measures can result in higher or lower agricultural product prices, based on the effect sought by public authorities. It all depends on the nature of the intervention implemented.

For instance, Canada's trade policy regarding fruits and vegetables seems to have caused a reduction in the price of these products because of the progressive elimination of tariffs; this does not appear to be the case in the United States. Therefore, these measures have allowed Canadians to enjoy a wide variety of fresh fruits and vegetables all year round. Other studies have shown that European agricultural policies, including trade barriers such as tariffs, have led to higher food prices for consumers in OECD countries, especially beef, milk products, sugar and orange juice.

Research and development programs

Research and development programs are also subsidies, but ones designed to increase competitiveness of agri-food sectors or businesses through, for instance, breeding varieties of cereals resistant to disease or improving the storage life of very low-sodium products. These programs can target actors in agricultural production as well as processors from the agri-food sector.

Research and development programs have had a well-documented impact on lowering the price of agricultural products, which is consistent given their influence on agricultural productivity and production costs. Several studies suggest that production gains linked to agricultural research and development play a much greater role than subsidies in determining and lowering prices. For instance, researchers recently examined the implications of research and development on specialty crops (fruits, vegetables and nuts) to enhance productivity in these sectors rather than focusing on traditionally supported commodities such as large-scale farming and livestock. They concluded that these programs have had substantial impacts on farm commodities' real prices, which have fallen by 50 per cent or more since 1950.

However, this study also shows that, compared with farm program subsidies, agricultural research and development policies have had much broader long-term effects. It takes many years before effects are seen on production, prices and consumption, let alone on population health, whose characteristics are cumulative and dynamic.

According to another study, agri-food research and development have also led to the arrival of many products containing high levels of sugar, fat and salt on the food processing market. The industry's use of cheap vegetable oils and its negative impact on eating habits in emerging economies has been documented. However, research and development is also an interesting solution to increase consumption of targeted food products, particularly fruits

and vegetables. Indeed, biotechnology offers enormous potential for making fruits and vegetables more accessible and easier to use by prolonging freshness and improving taste, appearance and nutritional quality. Experts go even further, demonstrating that the agri-food industry is already reacting to public health concerns linked to nutritional quality by developing and marketing new products, which are the outcome of research and development.

Promote the nutritional quality of foods

Positive measures could provide a framework and support Québec's agri-food processing sector, and thus promote the nutritional quality of foods. For example, putting into place the ways to support Québec businesses as a result of the Sodium Reduction Strategy for Canada could be an opportune time to start development of a food processing policy that corresponds to public health objectives. The sodium intake of the Québec population is determined largely by the sodium content in commercially-prepared foods, such as bakery products, sauces and dressings, marinades and condiments, and processed meats. The latter food groups can also be identified as sectors where establishing incentives, such as research and development or monitoring programs, could have a greater influence on the population's health.

Agricultural promotion programs

Few economic measures aimed at food processing and marketing have been documented aside from the Federal Farm Promotion program, a component of the United States' agri-food policy. This program, similarly to those in other industrialized countries, funds advertising campaigns to influence food intake and research and marketing projects targeting major fast-food companies. Sixteen products are covered by these programs. Producers are required to pay into the programs while also having access to agricultural subsidies. Some experts believe that the U.S. Congress should re-examine this measure's objectives when the programs are reviewed to consider the most recent dietary guidelines which encourage greater consumption of fruits, vegetables and whole grains.

Agricultural initiatives to supply institutions

The economic literature documents the effects of school and hospital initiatives such as agricultural surplus and American Farm-to-School programs. These measures target population sub-groups, can be included in broader strategies promoting healthy eating, and can have an

impact on the availability of foods and quality of food environments.

Agricultural surplus programs

Agricultural surplus programs allow surplus agricultural products to be sold while introducing foods such as milk, fruits and vegetables into communities where there are populations at risk of food insecurity. For example, through its Common Agricultural Policy (CAP), the European Union funds a surplus management program that involves free distribution of fruits and vegetables to hospitals and schools. The EU funds 100% of distribution, an annual total of 8 million euros. The CAP also encompasses a milk product distribution program. The program (EU School Milk Programme) has a substantial budget—50 million euros—and allows for in-school distribution of a large number of products, including milk, yogurt and cheese. This type of program also exists in several other countries such as the United States where, since 2002, the government has distributed fruits and vegetables it buys from American producers or processors. The Federal Fruit and Vegetable Program is distinct from existing meal programs and gives grants to schools, especially lower-income schools, to purchase fruits and vegetables. Although this strategy shows promise, the U.S. government usually disposes of agricultural surpluses—often without regard for the products' nutritional quality—by waiting for the market price of the commodity to rise above the price support level so it can sell these surpluses at a profit, or by selling excess products at low prices to school districts for infant and child nutrition or food security programs managed by the Department of Agriculture.

Indeed, the United States' agri-food policies differ from those implemented in other industrialized countries. A considerable part of its budget is allotted to the food policy component. In 2008, the budget for child food programs was US \$14.6 billion, used to fund the National School Lunch Program, Child and Adult Care Food Program and the Summer Food Service Program. However, according to some authors, the foods distributed through these programs are not chosen because they are the healthiest for children, but because they are in surplus as a result of programs to increase profits. Therefore, the policy of the U.S. Department of Agriculture is that over 60 percent of foods purchased must be determined to be in surplus at the time school authorities purchase them, which does not necessarily correspond to students' nutritional needs.

Evaluations of European school programs show interesting results, from a public health viewpoint and a perspective of increasing consumption of fruits and vegetables. However, these results do not help determine the overall impact and effectiveness of the agricultural policy behind these initiatives. From an economic perspective, surplus management measures are interventions that should usually be encouraged since an agricultural policy that generates recurrent surpluses should not be considered effective.

American Farm-to-School programs

Other initiatives in schools are also documented, such as the American Farm-to-School programs that are based on schools purchasing fresh produce from local producers during the growing season.

The effectiveness of these programs to improve eating habits has not been formally demonstrated; however, the implementation of Farm-to-School programs have had an impact on food variety, number of salad bars in school cafeterias, and students' relative access to cafeterias. Some researchers maintain that Farm-to-School initiatives even have the potential to increase consumption of fruits and vegetables among students. Moreover, the objective of these programs is not to replace participating schools' traditional food supply sources but to complement them during the growing season. In addition, the growing season is longer in the southern United States than in Québec, where the season coincides with summer vacation.

Many studies have raised the possibility of setting up measures designed to fund the consumption of targeted foods such as fruits and vegetables, whether or not these items are supplied by agricultural programs. It is difficult to conceive a wide-scale implementation of such a measure in Québec without a distribution channel dedicated to this type of initiative. It is also more consistent with the literature to focus on living environments such as schools in which to eventually implement targeted funding. Aside from subsidies, undertaking initiatives to encourage transactions between local producers and schools could make it easier to supply school programs designed to increase students' consumption of fruits and vegetables. Lastly, the literature does not allow us to evaluate if the priority given to local produce significantly affects food availability or if initiatives based on surplus management truly result in steady supply and availability of a wide-range of quality produce.



Price interventions

Price interventions, like taxes on ingredients or categories of foods, can target the processing sectors as well as consumers. There are enough good-quality studies in the literature on such interventions to highlight certain findings pertaining to the influence of these economic tools on population diet and weight. The studies retained are mostly modelling studies that look at implementation of hypothetical taxes on certain ingredients or on food products. In fact, no evidence of wide-ranging taxes intended to change eating behaviours was shown to have been implemented as part of strategies designed to counter obesity or chronic diseases in "industrialized" countries². It is important to note from the outset that the idea is not to show that consumers are sensitive to changes in the price of food products, but rather to support or counter the thesis that the influence of a price intervention is enough to significantly modify a population's diet or weight. Moreover, economic evaluations are not the only data to rule on the appropriateness of this type of measure. It is also necessary to consider the impact of proposed measures on disadvantaged groups, the role of social norms, and ethical considerations.

For the most part, the chosen modelling approaches support the premise that changes in consumption are more pronounced when hypothetical taxes are applied to ingredients (fat, sugar, fibre) rather than to food categories (fruits and vegetables, milk, meat). Theoretically, a tax based on the fibre content of a food has a more positive impact on plant-derived foods (including bread) than lowering the tax on whole wheat breads, which only benefits consumption of one product segment.

² In the fall of 2011, two countries (Hungary and Denmark) instituted such a tax but the actual effect of these measures has not yet been documented; the economic reasoning used in this scientific advisory to evaluate the impact of price interventions remains unchanged.

Conversely, experts consider that applying a measure that targets ingredients requires greater documentation and control than a simple tax reduction applied to product categories such as fruits and vegetables. Some experts go so far as to say that in practice, decision makers should support price interventions on foods rather than on ingredients, since the latter would be politically impracticable, from a legislative point of view.

Generally, authors agree that, at this time, the economic literature does not provide enough data to determine the actual effect such a taxation measure has on the diet and weight of the population. In a given population, most economic work on taxation has shown there is little, or even no, effect on consumption. As for the influence of taxes on population weight, a systematic review of the literature concluded that introducing small taxes is not likely to produce significant changes in obesity prevalence among the population. Nonetheless, modest effects have been documented in young people, disadvantaged groups, and people at risk for overweight.

Even so, experiments in cafeterias have demonstrated that lowering prices on products deemed healthier has had a positive impact on eating habits. However, when studied from an aggregated point of view, for larger populations and using econometric simulations, results do not always concur.

In short, the state of knowledge on price interventions demonstrates how measures that are based on changes in absolute and relative consumer prices of foods sold in places such as cafeterias can have an interesting impact on level of consumption. The economic literature on larger-scale interventions, such as increased sales tax on certain food groups, is not as convincing. The price effect on specific products alone will likely have relatively little influence on the overall diet of the population. Moreover, in a jurisdiction like Québec's agri-food sector, the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation is not the government actor that is best positioned to implement a tax on foods or nutrients, just as agri-food sector policies are not the best vehicle for this type of initiative.

Promising Avenues for Interventions to Guide Agri-Food Policies

Adapting agri-food policies to the reality of the obesity epidemic continues to be an important issue for public health experts. Some innovative businesses have already instituted change in their practices but public interventions are required to support and stimulate these initiatives. In addition, public policies remain an essential device for public authorities to influence diet, even though available scientific data does not allow assessment of the overall impact of agri-food policies on diet and weight.

On the whole, the influence of economic measures on the population's diet seems to be limited. This can be explained mostly by the paucity of data available to determine the impact of agricultural policies on the population's diet, and by the difficulty of quantifying these effects. Nonetheless, some economy-based agri-food policies affecting processing or consumption in particular contexts, like subsidies and price interventions, have had an impact on the population's diet through their influence on price, availability or nutritional quality of foods.

In light of the state of current scientific knowledge, it is possible to identify measures that could be adapted to the Québec context. Figure 3 presents the most promising avenues of intervention to explore.

The Institute proposes the following three avenues to guide agri-food economic measures, but also to improve knowledge on this subject:

- Increasing the **number of farmer's markets offering fruits and vegetables** could have a positive effect on the availability of these products when in season, especially in disadvantaged urban and rural areas.
- **Developing a coherent processing policy** with public health objectives could have a positive impact on the nutritional quality of food products, ultimately allowing Québec companies to stand out from competitors.
- Developing a school program based on local suppliers offering **fruits or vegetables and milk to elementary and high school students** in Québec.

These avenues for intervention lead to an exploration of new forms of subsidies or tax credits, but also to adoption of a thorough evaluation process of the health impact of future policies on the diet of the Québec population. The agricultural and agri-food sectors are vital, not only to preserve a Québec identity but also for the growth of

regional economies. This sector would benefit greatly from fostering health, notably to justify implementation of new public policies and to cement its long-term relationship with Québec's population.

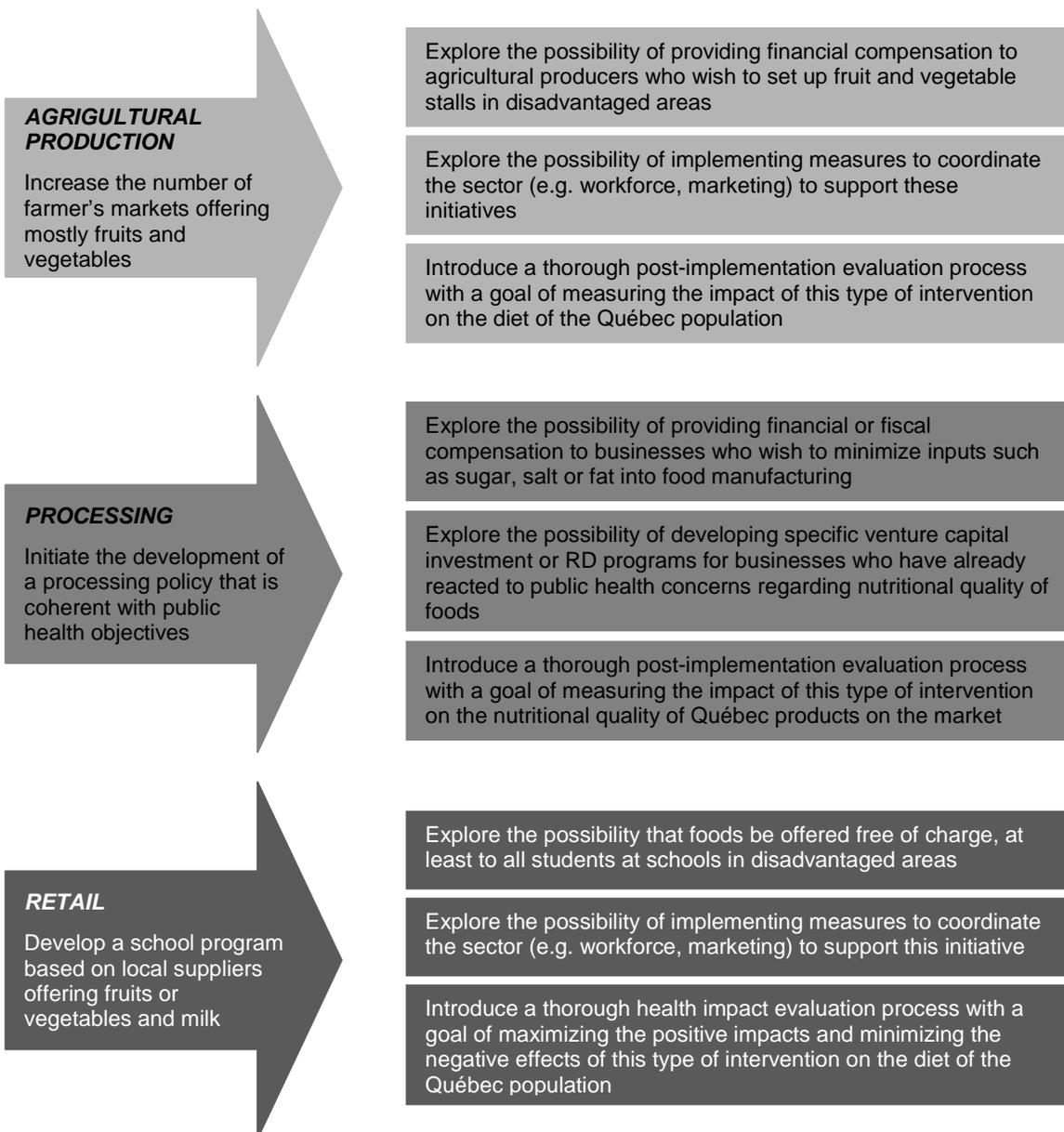


FIGURE 3 PROMISING AVENUES FOR INTERVENTION

For bibliographic references, see the full scientific opinion in French at the following address:
www.inspq.qc.ca/publications/default.asp?NumPublication=1343.

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