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The Momentum of the Double Burden of Malnutrition: What is the effect of path dependency in nutritional policy effectiveness in Latin America?

Ros Pla, Berta

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The Momentum of the Double Burden of Malnutrition:

What is the effect of path dependency in nutritional policy effectiveness in Latin America?

Berta Ros Pla

S2749904

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INTRODUCTION

Nutrition-related non-communicable diseases are an increasing problem in developing countries (Larr et al., 2020). Whereas undernutrition measures like stunting, wasting or underweight are slowly decreasing in low and middle income countries, the rapid increase in overweight and obesity rates over the past 30 years have generated a new double threat for these countries, known as the Double Burden of Malnutrition (DBM) (Haddad, Cameron & Barnett, 2014). The DBM is defined as the existence of undernutrition together with overweight and obesity across the same country, population or household (Hernández-Ruiz et al., 2021).

This paper focuses on the concepts of path dependency and state capacity to show how countries with previous government structures are able to respond better to new public health puzzles or threats. By doing so, the aim is to strengthen the rising nutrition governance literature by contributing to the studies of how governments and politics affect population's health and nutritional outcomes in low and middle income countries.

THEORETICAL FRAMEWORK

The area of scientific nutrition and the creation of nutritional interventions is rather new for public health across all countries around the world (Shrimpton & Rokx, 2012). Despite that, the fact that malnutrition is now catalogued as the most important factor affecting social development efforts (Engesveen et al., 2009, p. 10), and that its reduction is crucial for positive long-term economic, social and physical outcomes has increased state's interest and responsibility to engage in nutritional governance agendas (D. Headey, 2012, p. 76).

Malnutrition is defined as the excess or deficiency of macro or micronutrients in one individual (Shrimpton & Rokx, p. 3, 2012). The term overnutrition is used when there is an excess of macro and micronutrients, which is linked to the presence of obesity and overweight, which at the same time can cause diabetes, cardiovascular diseases and other nutritional-related diseases (WHO, 2021). On the other hand, the term undernutrition is used when there is a deficiency of nutrients. This can cause underweight, wasting and stunting problems, which are linked to a higher risk of death among children, a decline on physical and cognitive skills, hormone imbalances or the appearance of diseases (WHO, 2021). The Double Burden of Malnutrition (DBM) enclose both forms of malnutrition, and is defined as the existence of over and undernutrition in the same country, population or household (Hernández-Ruiz et al., 2021).

Numerous literature have developed different theories that try to illustrate what political effects makes some states more successful than others in developing nutritional governance and policies (Shrimpton & Rokx, 2012; Fumagalli, Mentzakis & Suhrcke, 2013; Baker et al., 2018; Manga et al, 2022).

First, literature investigating the relationship between nutrition and economic status argued that economic development alone could explain the increase or decrease of undernutrition across countries (Shrimpton & Rokx, 2012). For example, Heltberg concluded that economic growth was statistically significant with chronic child malnutrition (2009). Nafti (2021) also concludes that her results are consistent with other authors in that a country's Gross Domestic Product (GDP) per capita leads to reductions in the total of population that are malnourished (p. 462). In regards to overweight trends,

Goryakin & Suhrcke (2014) found that an increase in GDP per capita weakens the association between socioeconomic status and overweight. Not only that, but economic status is also important to explain variations in policy making. Policy development is still heavily reliant on economic outcomes (Diener & Seligman, 2004), and economic outcomes are also dependent on policy and institutional developments (S. Grindle & W. Thomas, 1989).

Other scholars have focused on studying nutrition outcomes through theories of democratisation. Some attribute that more democratic countries increase one's individual health parameters (Klomp & de Haan, 2009; Krueger, Dovel & T. Justin, 2015) whereas other scholars focus on its effects in different public health outcomes such as life expectancy, infant mortality, nutrition-related measures, or public health (Lee, 2023; Wigley & Akkoyunlu-Wigley, 2011; Franco et al., 2004; Safaei, 2006).

Other theories have focused on the relationship between policy effectiveness, public health and education. According to the literature, high educated people have shown to perform healthier behaviors, whereas low educated people are more correlated with unhealthy habits (Liu et al., 2021, p. 2). Education has also proven to be an indicator for undernourishment, where better education levels had shown to have a positive impact on reducing undernourishment than economic status in developing countries (Soriano & Garrido, 2016). On the other hand, people with higher education show more prevalence of diabetes, hypertension, overweight and obesity (Al Kibria et al., 2020, p. 163).

There is no specific relationship between education levels and nutrition policy effectiveness. However, in terms of the total of effective policies, education is a basic element to analyze state development (Bwenge, 1998). More educated politicians and bureaucrats are able to facilitate trust within each other, which fosters policy development and state decentralization (Dasandi & Esteve, 2017, p. 9). In that sense, we should expect countries with higher educated bureaucracy to perform better at measures like government effectiveness or policy development.

Ethnic diversity has also been studied by many scholars as a barrier for public goods provision in developing countries (M. Gisselquist et al, 2015; Lieberman 2009; Egorov et al., 2021). The "diversity debit" hypothesis, which illustrates that ethnic diversity is negatively associated with the provision of public goods and services and other economic and political outcomes has been widely researched by scholars across developing countries (M. Gisselquist et al., 2015, p. 308). For example, during the COVID-19 pandemic, the informal norm of social distancing was more difficult to sustain in places with high ethnic diversity (Egorov et al., 2021, p. 193).

In Latin America, research has shown how indigenous people suffer from the diversity debit hypothesis, resulting in a lack of access to healthcare services and an increase of the numbers of maternal mortality among indigenous women (Camacho, Castro & Kaufman, 2006). This could affect public health policy performance, as policies become ineffective if there is no access to the system in the first place.

Path Dependency

The lack of state capacity has also been studied as a factor affecting nutritional health policies. State capacity is defined as "the degree of power that the state exercise over citizens, activities and resources within the government's territorial jurisdiction" (Tilly, p. 78, 2001), and a lack of it leads to poor policy enforcement and implementation, weak service delivery, and low economic development (Fukuyama, 2004; Mangla, 2022).

High capacity developing states were able to mobilize and respond faster than low capacity governments during the first wave of the COVID-19 crisis (Yen et al., 2021). In the Indian state of Himachal Pradesh, the existence of bureaucratic norms that guided public officials to generate state capacity led to an increase in universal primary education that was higher than in any other Indian states (Mangla, 2022).

Scholars have pointed towards path-dependency theory as the sign for the existence of progress towards state capacity increase (Foa, 2022; Hiilamo & Glantz, 2015). In this case, I argue that the development and success of obesity and overweight policies in Ecuador is (partly) determined by the previous existence of nutritional structures and similar nutritional policies.

Moreover, path dependency is often represented as the causal factor of long-term health policy stability and health reform incrementation (Hornung & Bandelow, 2021). Big, sudden reforms in health care are not impossible, but when a new reform of an existing health care problem is needed, the countries that have already dealt with that issue or have existing institutions to do so will be more likely to perform better at implementing the new policies (Wilsford, 1994).

Even more societal factors like citizen advocacy networks and interest groups representation are deeply interconnected with path dependency theories. In countries where there is an existing systematic involvement of these groups, its power in the policy-making process is expected to be greater (Hornung & Bandelow, 2021). Therefore, path-dependency does not only look at institutions and structures, but it also aims to explain the variations in power of different actors and their capacity to influence policy across countries (Harris, 2015; Falleti, 2012; Mangla, 2022; Yen et al., 2022).

The double burden of malnutrition is a recent external event that has the power to act as a window for public action. In places where undernutrition policies are still active, the window of opportunity to include more nutritional policies to tackle obesity and overweight might be greater than in countries where nutritional policies require a big policy change (Shearer et al., 2016).

METHODOLOGY AND CASE SELECTION

The objective of this research is to analyse whether theories of path dependence and state capacity can help to explain why developing countries suffering the Double Burden of Malnutrition can be performing better at tackling overweight and obesity. More specifically, I will look at the obesity and overweight rates from the Latin American and the Caribbean region, and then compare the success of nutrition policies that they have implemented in order to reduce the alarming trends of this worldwide malnutrition problem.

I have decided to focus on the Latin American and the Caribbean region for several reasons. First, the Double Burden of Malnutrition (DBM) is increasingly affecting this area, being the third region with the highest numbers of DBM (FAO, 2021). Secondly, non-communicable diseases (NCDs), which are highly related with overweight and obesity, count for 81% of the total deaths in the Americas (OPS, 2022). In addition, Latin American health systems are characterized by having high fragmentation and under financing, with governments spending just about 3,8% in public health services, an amount that is still far from the 6% objective (OPS, 2022).

A comparative case between Colombia and Ecuador will be the method of analysis for this research. Comparative cases allow us to investigate why some policies have been implemented in some places and not others, and to solve puzzles between cases with similar backgrounds and variables but with different results (Dinour, Kwan & Freudenberg, 2017). I will be comparing the cases using a most similar systems design (MSSD) approach, since Ecuador and Colombia present basic similarities in terms of its economic, demographic and most importantly, obesity and overweight scores, but differ on the outcome of the efficiency of their malnutrition policies. Moreover, Ecuador suffers the Double Burden of Malnutrition, and yet I argue that it is performing better than Colombia in overweight and obesity policy development. Using a MSSD approach will allow me to focus on explaining and analysing the relationship between the independent and the dependent variable without having to worry about an excessive amount of control factors (Steinmetz, 2021, p. 176).

According to the Nutrition Landscape Information System (NLiS) and the Global Obesity Observatory, these two countries are experiencing similar overweight and obesity trends, but only Ecuador is also dealing with high numbers of stunting, wasting and underweight. Despite that, Ecuador has more policies related to reducing overweight and obesity than Colombia. This is an interesting puzzle to investigate for scholars of nutrition, public health and policy development. In theory, we could expect that Colombia would have more leverage to introduce new policy to tackle overweight and obesity since they do not account with important underweight or stunting levels. In practice, however, Colombia has currently nine overweight policies in action; Ecuador has over twelve (Global Obesity Observatory, 2022).

Not only that Ecuador has more policies in place than Colombia, but more importantly, I argue that Ecuador has better policies regarding overweight than Colombia due to a path dependency factor: Ecuador has been and is still dealing with undernutrition, having the necessary structures and institutions to tackle malnutrition already in place. Therefore, Ecuador has been able to experience an incremental, rather than big change from only having undernutrition policy to the incorporation of overweight policy development.

In Colombia, the fact that it did not account with the necessary structures and institutions to tackle any form of malnutrition previous to the increase of overweight levels has made it difficult for the country to make big changes in policy development and implementation of new nutrition-based structures aimed at reducing overweight and obesity numbers

EXPLANATORY VARIABLE: The Double Burden of Malnutrition

Despite the alarming numbers of the DBM in Latin America and the Caribeean, must research on the Double Burden and nutritional governance has focused on the African and Asian regions due to being the first places with higher DBM prevalence in the 2010s (Gillespie & Haddad, 2003; Popkin et al., 2020; Haddad, Cameron & Barnett, 2014; Hernández-Ruiz, 2021). Seeing the increasing numbers of overweight and obesity, and the slow or, sometimes, almost no decline of underweight in the Latin America and the Caribbean region, more research is needed to understand how to tackle the DBM and how can Latin American governments increase policy development and structures to address this critical public health problem.

Colombia and Ecuador have a high obesity prevalence compared to the median of the Latin American region. Moreover, Ecuador is still facing high stunting and wasting scores, being on the top of Latin American countries with large underweight scores (Global Nutrition Report, 2022). Table 1 shows the different overweight, obesity, underweight, stunting and wasting scores per country for the most recent year of comparable information.

Table 1*: Different malnutrition scores divided per country as per 2016.*

INDICATOR	YEAR	COLOMBIA	ECUADOR
Prevalence of stunting of children under 5 years of age	2020	11,5	23,1
Prevalence of wasting of children under 5 years of age	2016Colombia 2019 Ecuador	1,6	3,7
Prevalence of underweight of children under 5 years of age	2016 Colombia 2019 Ecuador	3,7	5,2
Overweight in school-age children and adolescents 5-19 years (%)	2016	24,3	28,3
Obesity in women 18 years and over (%)	2016	26,6	24,7
Overweight and obesity in women 18 years and over (%)	2016	61,2	59,2
Underweight in women 18 years and over (%)	2016	2,7	1,4
Prevalence of undernourishment	2018	5,5	8,8

Note. stunting - height-for-age <-2 SD of the WHO Child growth standards median; wasting - weight-for-height <-2 SD of the WHO Child growth standards median; women's BMI ≥25.0: overweight; women's BMI≥30.0: obesity; women's BMI<18.5: underweight; The prevalence of undernourishment is defined as the proportion of the population whose habitual food consumption is insufficient to provide the dietary energy levels required to maintain a normal active and healthy life. Adapted from: *Nutrition Landscape Information System: Country Profile*, by the World Health Organization (WHO), 2019, WHO (https://www.who.int/data/nutrition/nlis/country-profile).

Looking at overweight and obesity in women, both Colombia and Ecuador are in the median of the Latin American and the Caribbean region' score, which is 60% (United Nations, 2018). The results for overweight in children do not differ from each other drastically, which shows how equal these countries are in terms of overweight and obesity performance. On the other hand, the difference on child underweight and stunting scores between the two countries is worth pointing out. The 23,1% of stunting in Ecuador is exceeding the 11,3% median of the region (Global Nutrition Report, 2022). The information gathered from the WHO, the Pan American Health Organization (PAHO), National Surveys and other organizations have helped scholars from the public health and nutritional sectors to catalogue Ecuador as part of the developing countries affected by the DBM (Freire et al., 2014; Galicia et al., 2016; Villena-Esponera, 2019; WHO, 2019).

To conclude, I have selected the data provided by the WHO Nutritional Landscape Information System (NLiS) to measure the explanatory variable due to being the most reliable and straightforward health data for looking at nutritional similarities and differences between countries. The NLiS has been created under a conceptual framework that is made by sources from different well-known international organizations like UNICEF, FAO or the World Bank, in addition with other local, in-country sources (WHO, 2019).

OUTCOME VARIABLE: The Effectiveness of Overweight and Obesity Policies

We could expect that those countries only dealing with one of the burdens should perform better and have more effective policy implementation and capacity to reduce these pathologies. However, scholars have pointed out that countries suffering both ends of malnutrition could be performing better at managing both issues due to the policy momentum that the DBM has created (Manga et al., 2022; Winichagoon & Margetts, 2017). In other words, DBM experts have started to develop specific frameworks that tackle both ends of the double burden, increasing the effectiveness to reduce both pathologies faster while still showing good rates of achievability for governments to include these policies (Manga et al., 2022, p. 2051).

A systematic literature review of the best measurement tools to assess government policies for healthy food environments and obesity prevention conducted in 2016 found

only three tools rated as 'high' quality (Phulkerd et al., 2016). One of these methods, which is the measure used Manga et al., (2022)'s research on the DBM in Senegal, is the Food-EPI tool developed by the International Network for Food and Obesity Research, Monitoring and Action Support (INFORMAS). The Food-EPI tool looks into governments' policies and infrastructure support for development and implementation, focusing specifically on obesity and diet-related noncommunicable diseases prevention (Manga et al., 2022, p. 2045). Therefore, it could be an ideal mechanism to measure the outcome variable of this thesis. However, as for the time of this research the Food-EPI tool is only available in 55 countries, of which Colombia is not included and Ecuador is, but researchers are still in the data collection process (INFORMAS, 2021).

Another tool identified by Phulkerd et al., (2016) is the worldwide questionnaire for the WHO Global Nutrition Policy Review (p. 5). This extensive report looks at the progress in the creation of policy for promoting healthy diets and nutrition (WHO, 2018). However, the report does not include the country-specific information gathered from the questionnaires; rather, it performs an analysis of general conclusions and recommendations according to the results, which are categorized by regions and not by countries (WHO, 2018). The report does mention that the questionnaires should be available upon request, however no answer has been given in order to use them for this thesis analysis, meaning that currently, it is a measure out of reach for this evaluation. The final tool mentioned in Phulkerd et al.,'s review consists of a guide for interviews for an evaluation of the Action Plan on Nutrition in the Norwegian country and it is not applicable for the analysis either (2016, p. 10).

All in all, it is clear that as for now, there is no general, effective measure to tackle policy effectiveness and implementation of nutritional goals and norms (Phulkerd et al., 2016, p. 10). Other nutritional scholars also agree with this view, emphasizing how other general tools for measuring different public health issues like breastfeeding, HIV/AIDS, alcohol or tobacco control have been successful in analysing countries' effectiveness, meaning that an effective measurement for nutritional policies is viable (Alberto-Díaz et al., 2017; Grajeda et al., 2019; Haddad, Cameron & Barnett, 2014; Jha et al., 2014; Gillespie et al., 2013).

For the purposes and time constraints of this research, the measurement of the outcome variable will therefore be undertaken by looking at the existence of policy implementations. As for now, this is the most-used measure in the field of nutrition governance research (Phulkerd et al., 2016).

Using the monitoring tool for the implementation of the WHO guidelines of the Plan of Action for the Prevention of Obesity in Children and Adolescents[1], the Global Obesity Observatory[2], the information from the Global Nutrition Report[3] and the Scaling Up Nutrition (SUN) movement[4] I will be able to measure the implementation of obesity and overweight policies in Colombia and Ecuador not only based on the total number of policies, but rather assessing their progress towards well-known diet-related goals and commitments. The combination of data is necessary, because as mentioned above, no tool is available for these countries yet that assesses all obesity and overweight policies together. Figure 1 presents an overview of the policy implementation level for Ecuador, and Figure 2 for Colombia according to the different sources of information. Looking at the overview of both countries, we can already see that Ecuador seems to have extra and more extensive policies spread in different areas of action.

[1] Data: Monitoring child and adolescent obesity indicators - PAHO/WHO | Pan American Health Organization
[2] Data: https://data.worldobesity.org/country/colombia-43/#data_policies Colombia, https://data.worldobesity.org/country/ecuador-59/#data_policies Ecuador
[3] Data: https://globalnutritionreport.org/resources/nutrition-profiles/latin-america-and-caribbean/south-america/colombia/#interventions-and-financing Colombia, https://globalnutritionreport.org/resources/nutrition-profiles/latin-america-and-caribbean/south-america/ecuador/#interventions-and-financing Ecuador
[4] Data (only available for Ecuador): https://scalingupnutrition.org/sun-countries/ecuador

Figure 1*: Main obesity and overweight-related policies by source of information in Ecuador.*

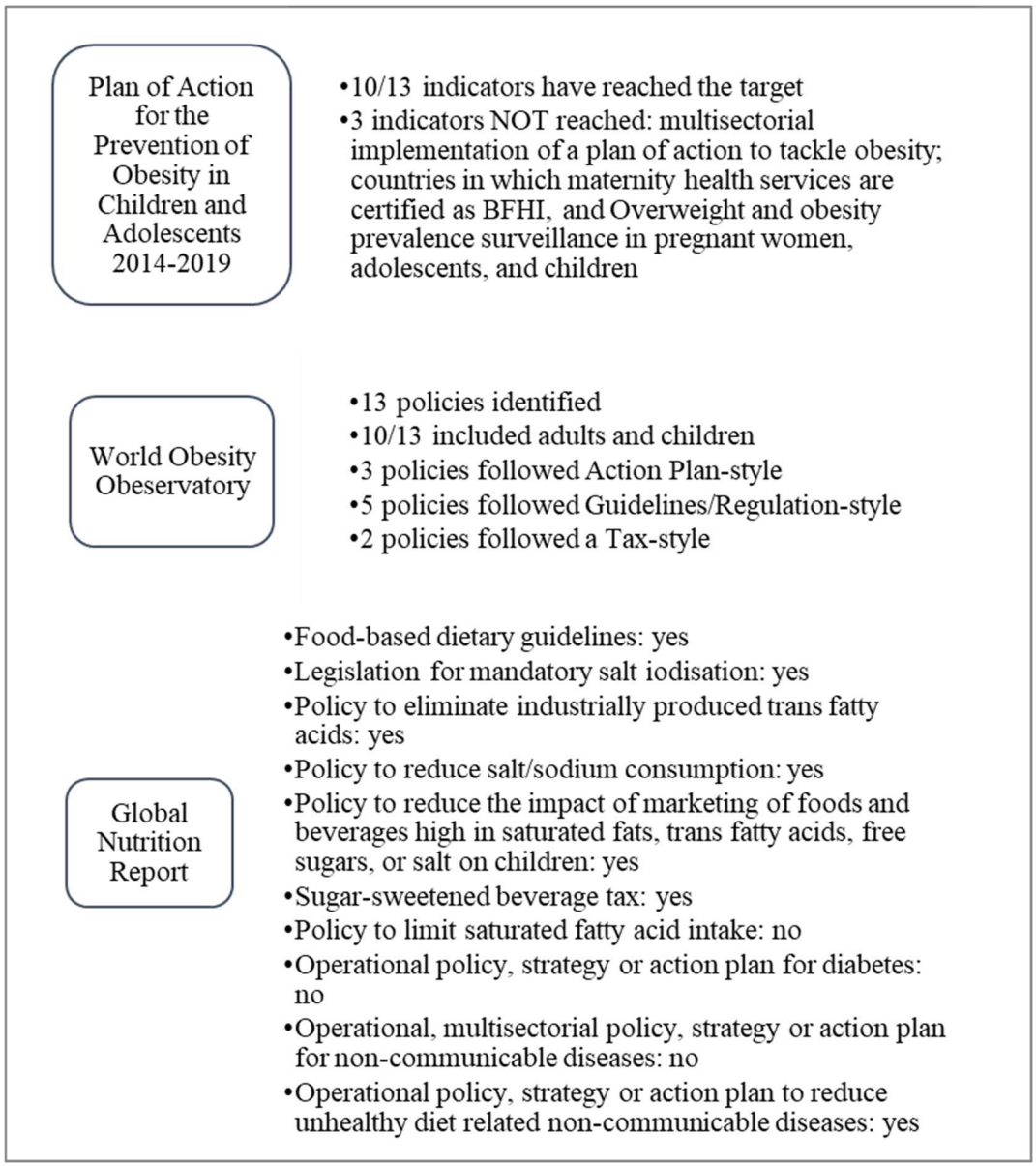
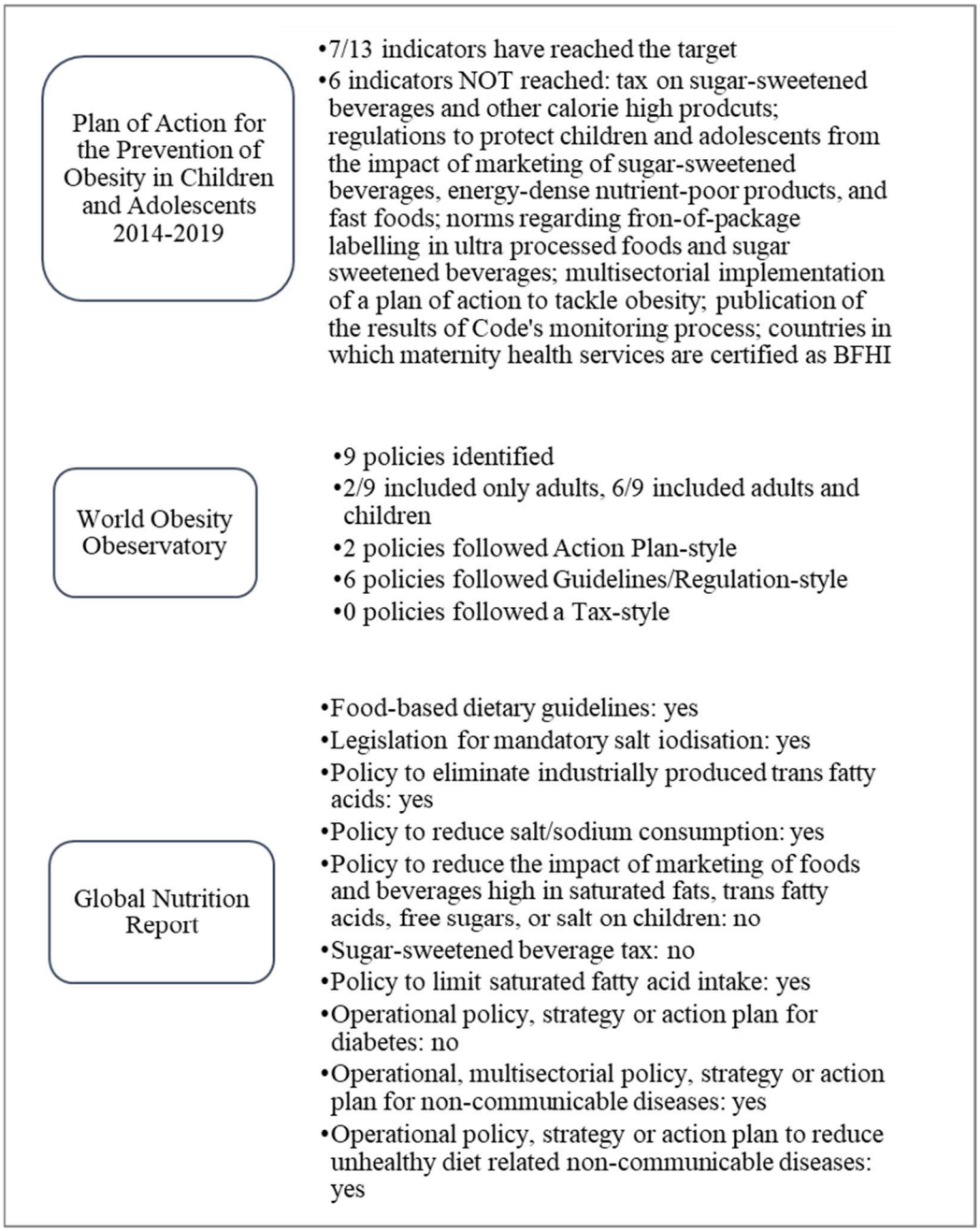


Figure 2: *Main obesity and overweight-related policies by source of information in Colombia*



The next section will provide a deeper analysis in the assessment of what types of policies have been implemented in both countries, and why some policies have proven to be more effective than others. In this way, the measurement of the outcome variable will not be based on the existence of policy alone, but rather on the effectiveness of the policies implemented according to the current literature on nutrition and diet-related causes of noncommunicable diseases.

COMPARATIVE ANALYSIS

In order to understand which policies have proven to be more effective for reducing overweight and obesity trends, a review of the current literature on nutritional policy effectiveness is needed. The PAHO child and adolescent obesity indicators were focused around 5 main areas of action: primary healthcare and breastfeeding promotion, school nutrition and physical activity, fiscal and marketing, multisectoral actions, and surveillance & research (PAHO, 2020).

94% of Latin American countries, including Ecuador and Colombia have implemented policies for school nutrition programs (Molina et al., 2021). When assessing the impact of the implementation of these nutritional policies, scholars have found no significant effects in academic performance (Molina et al., 2021, p. 357) but nutritional education, eating habits, daily intakes of vegetables and fruits and a reduction of unhealthy foods were positively associated with the implementation of these programs (Moitra, Verma & Madan, 2021; Navarrete et al., 2015). In addition, when nutritional programs also include physical activity guidelines, there is a greater effect on the reduction of child obesity and overweight levels (Navarrete et al., 2015, p. 112; Ward-Begnoche et al., 2009).

In Ecuador, regulations for the operation of school bars, the implementation of the WHO plan of action for child and adolescent obesity prevention, and the *"Plan Intersectorial de Alimentación y Nutrición Ecuador 2018-2025"* are the main public policies that the state has introduced in schools, and that include both nutritional and physical activity guidelines (World Obesity Observatory, 2020, Ministerio de Salud Pública del Ecuador, 2018). In 2017, the Ministry of Education presented an investigation on the effects of the school nutritional programmur implemented since 1999 on school registration over time (Ponce & Rosales, 2017). They found that school registration increased by 9% in schools that incorporated the nutritional program compared to the control group. The authors also mentioned the willingness to evaluate school performance, but expressed that not enough data was available to conduct a reliable analysis (Ponce & Rosales, 2017). Another study conducted by Weigel and Armijos (2022, p. 453) showed that schools with the nutritional program were associated with a 25% reduction in the odds for obesity in primary students.

In Colombia, an evaluation of the results of the "Programa de Alimentación Escolar (PAE)" performed between 2011 and 2019 showed that the level of school absence

decreased by 10%, and that school performance was marginally improved (Ministerio de Educación Nacional & UApA, 2022). Note that the improvement of the school performance variable was not statistically measured, and since previous research has demonstrated a non-significant relationship between school nutrition programs and academic performance (Molina et al., 2021), a more in-depth study on this aspect is necessary in Colombia in order to make reliable conclusions.

The implementation of taxes on sugar-sweetened beverages and calorie-dense foods together with the implementation of policies to reduce the impact of marketing in middle and low-income countries are perhaps the two most potential areas of action that have an effect on both children and adults obesity and overweight levels (Nakhimovsky et al., 2016). However, it is also the most controversial due to its impact at the social, legal and economic level (Harris et al., 2009). In Latin America, this area of action is one of the areas with the least public policies, which shows its high controversy and difficulty for governments to implement it (Molina et al., 2021). If implemented, taxes on sugar-sweetened beverages have proven to be effective in the reduction of these beverages and in the increase on water consumption (Álvarez-Sanchez, 2018; Nakhimovsky et al., 2016).

Looking back at Figure 2, Colombia has not achieved to have any policy for the indicators concerning fiscal policies and regulation of food marketing and labelling. There is one policy on the regulation of the maximum sodium levels of processed foods, and one resolution on the nutritional and frontal labelling requirements (World Obesity Observatory, 2020) but no tax or marketing regulation to reduce overweight and obesity is in place yet.

Ecuador on the other hand is on track on the development of policies of this line of action. The government has included a 10% ad valorem tax on sugar-sweetened beverages, a measure to limit or eliminate industrially-produced trans fatty acids in foods for direct sale or service foods, a food labelling campaign, a weight based specific excise tax for unhealthy foods, a mandatory labelling guideline for packaged foods and drinks, and last but not least, the traffic light food labelling system (World Obesity Observatory, 2020). All of these actions, regulations and taxes fall under the same area of action, where we can observe a huge, remarkable difference on policy development between Colombia and

Ecuador. The reason behind this enormous variation will be discussed in the process tracing section, but first, an analysis on the possible level of effectiveness of these policies in Ecuador is needed in order to understand if Ecuador has better obesity and overweight policies than Colombia.

Due to the lack of data to assess the effectiveness of nutritional policies in the current population, scholars are recurring to different methods of evaluation, like simulation-based analyses that estimate, in this case, the response of the consumer according to the price change introduced by the tax (Segovia et al., 2020). In their study, Segovia et al., (2020, p. 7) descriptive statistics show a real, already present difference in the beverages consumed within households. Whereas high-income households prioritize milk and water consumption, low-income households spend the same amounts in milk and soft drinks, which are more sensitive to price elasticity (Segovia et al., 2020, p. 7). In that sense, a tax that would increase the price of both sugar and no sugary soft drinks would reduce its consumption due to its high elasticity. Moreover, the authors also found a small but positive effect on the reduction of bodyweight with the application of the tax (Segovia et al., 2020, p. 14). One could argue that if the tax is applied in both sugar and non-sugary beverages, a decrease in milk consumption, especially in low-income households could be counterproductive due to the high levels of child stunting in the country. Milk consumption is highly encouraged and a valuable mechanism to reduce undernutrition (Miller et al., 2020), but since Ecuador's policy is specifically targeting sugar-sweetened beverages, the possible harm that the tax could make is nonexistent, having the opportunity to even increase milk consumption across low-income households (Segovia et al., 2020, p. 14)

Other measures like the traffic light system have also been studied. However, results are not conclusive on the effectiveness of the system. Whereas some studies conclude that the traffic light system is not statistically significant in reducing carbonated soft beverages (Sandoval et al., 2019), others conclude that population's knowledge of the traffic light system is statistically high, and that consumers' behaviours on the selection of more healthy foods and beverages has increased by 6,7% (Díaz et al., 2017). Another study concluded that Ecuatorians' knowledge of the functioning of the traffic light system does not imply changes in their consumption of high caloric foods and beverages, and only 29% of families have made a change in their consumption habits and reported to have experienced weight loss thanks to the traffic light system (Muriel, 2019).

The impact of the marketing and publicity of high caloric foods and sugary beverages increases the risk of NCDs, obesity and overweight levels among children (Chemas-Velez et al., 2019). Whereas Ecuador does not have much research on the impact of its specific marketing regulations in its population, studies in other Latin American countries have shown that the most frequent advertised food were ultra-processed foods, representing between 5.6% and 36.4% of the total television ads, and that lower nutritional value foods were more advertised in children's television programming than in general audience programming (Chema-Velez et al., 2019, pp. 11-13). Studies in Peru and Chile have shown that marketing regulations were successful in reducing junk food advertisement and increase the promotion of healthy diets and physical activity (Molina et al., 2021, p. 358). Therefore, despite the fact that there is no data on the effects of Ecuador's market regulation policies on its population, the main findings in other areas of the region provide evidence for the assumption that marketing policies are also effective in Ecuador's population.

Moving into other areas of action like primary healthcare and the promotion of breastfeeding, Ecuador and Colombia present similar overall results. Both have implemented national food-based dietary guidelines even before the 2014 PAHO recommendation (Molina et al., 2021). This national guidelines are implemented with the objective of increasing healthy eating, physical activity, reduce unhealthy food and drinking habits, and promote breastfeeding (PAHO, 2014). Moreover, the goal of primary health care policies is to ensure that the highest quality services possible are available for all citizens, which has demonstrated to have an important role on the prevention of obesity and its long-term effects (PAHO, 2014, p. 17).

When looking at the current data, there are some indications that Colombia's national plan may not being as effective as Ecuador's. First, a research on the percentage of insufficient physical activity in Latin American countries in 2018 revealed that whereas Ecuador was at 27.2% of adults with insufficient physical activity, Colombia was standing at 44% (World Obesity Observatory, 2020). Fruit intake per capita is also higher in Ecuador, with 196g/day versus 154g/day in Colombia (World Obesity Observatory, 2020). Moreover, the most recent data on exclusive breastfeeding in Ecuador was reported to be at 40% in 2004, whereas Colombia was at 37% as in 2016 (World Bank, 2016). However, recent data on the continued breastfeeding at 1 year shows that Colombia has improved its numbers and is now at 54.7%, versus Ecuador that is at 58.5%

(Global Nutrition Report, 2022). This improvement show that the recent programs implemented on the marketing of breast-milk substitutes and the promotion of breastfeeding by the Ministry of Health in Colombia (World Obesity Observatory, 2020) are being effective on increasing its breastfeeding numbers.

Perhaps one of the reasons why we could assume that Ecuador's national nutritional plan is more effective than the one in Colombia is because of the difference in scope of both programs. The National Plan for Nutrition and Food Security in Colombia is focused on three main objectives: protect the population from situations that can lead to malnutrition, make sure that population' access to food is adequate, and integrate and articulate different intersectoral interventions (Gobierno de Colombia, 2013). This program was implemented in 2019, and as for today, no other national nutritional program of the same scope has been applied. Moreover, the program focused strongly on food security, and important element on the prevention of malnutrition, but perhaps not as effective as the promotion of physical activity, healthy diets and the reduction of unhealthy foods and beverages to reduce obesity and overweight in adults and children (Molina et al., 2022). On the other hand, the Intersectoral Food and Nutritional Plan 2018-2025 in Ecuador does manage to cover a wider variety of guidelines, interventions and specific objectives that can lead to the reduction of over and undernutrition more effectively (Gobierno del Ecuador, 2018).

To conclude, it is clear that Ecuador has more and better policies to tackle obesity and overweight than Colombia. The former covers more areas of action and has better, interconnected policies that are resulting to be effective in different obesity and overweight-related indicators. Colombia shows an improvement on some areas of action, but more work is needed in others, like the marketing and tax on sugar-sweetened beverages and high caloric dense foods. However, the research question of this thesis is only partially answered. We now know that Ecuador has more effective policies than Colombia, but why is that the case? In the following section, I will demonstrate why Ecuador's success is strongly related to the country experiencing the DBM rather than on other alternative explanations found in the literature.

ALTERNATIVE EXPLANATIONS

Democratic level and social policy enablement

Theories of democratisation have been widely explored to explain variations in social factors like public health across countries (Nazarov & Obydenkova, 2021). The evidence suggests that more democratic countries have better life expectancy, lower infant mortality, more public spending in health services and greater health policy interventions (Wigley & Akkoyunlu-Wigley, 2011; Franco et al., 2004; Besley & Kudamatsu, 2006; Safaei, 2006). However, democracy is certainly not the only determinant of public health provision, and the argument that democracy holds politicians accountable to citizen demands, making them more successful in producing efficient policy, does not imply a direct correlation with better health numbers in democratic countries (Lee, 2022).

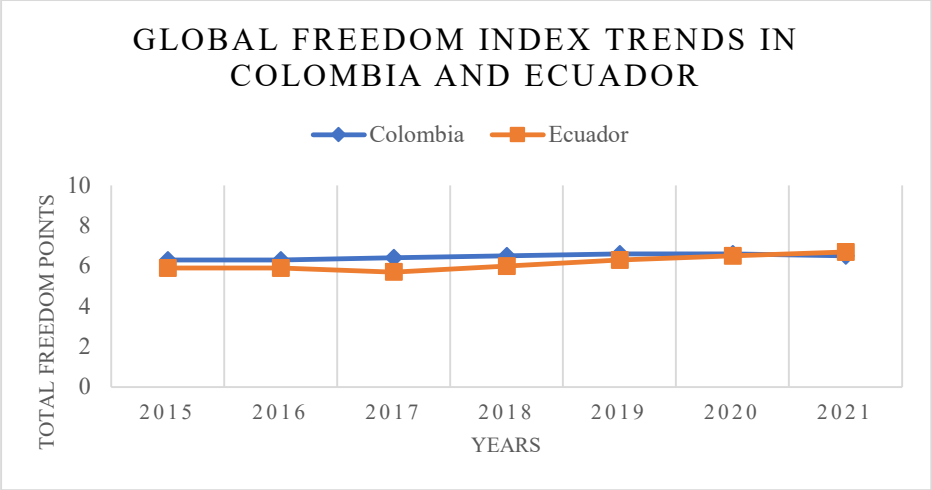
The Latin American region was hit by what Samuel Huntington has coined as the "third wave of democratization" (1991). Between 1980 and 1985 Latin American regimes started to switch from military and authoritarian towards more democratic and liberal. This transition has had positive outcomes for social policy in the region (Haggard & Kaufman, 2009). Nowadays, despite the fact that almost all countries of the region can be considered as democracies, there is considerably variation between countries and their public health outcomes (L. Gibson, 2018). For example, the transition to democracy that Brazil witnessed in the mid-1980s pushed for the formation of social development and public goods provision (L. Gibson, 2018, p. 1). Yet the deep transformation that changed Brazil's public health system did not come from being a democracy itself, but rather from civil-society activists that pushed for government accountability and maximized public health outcomes (2018, p. 2).

In order to control for democracy in Colombia and Ecuador, I will analyse democracy scores across time using the Freedom House Index. This Index is based on the total scores for political rights and civil liberties that each country possess, dividing them in 'Free', 'Partly Free' and 'Not Free' statuses (Freedom House, ….).

Figure 1 shows that Ecuador is experiencing an upward trend towards being more 'free', whereas Colombia is experiencing a downward trend in the total freedom percentage.

Despite this, no major difference exists between the two, as both countries are scoring quite similar when compared to the total region of Latin America (Congressional Research Service, 2022, p. 6).

Moreover, if we look at other democratic index like the Varieties of Democracy Institute (V-Dem), the Economist Intelligence Unit (EIU)'s Democracy Index, or the Bertelsmann Transformation Index (BTI), Ecuador and Colombia are within a maximum of five positions from each other out of the total Latin American and the Caribbean countries (Congressional Research Service, 2022, pp. 1-6).



Since democracy levels are similar in both countries, explanations involving democratic theories to analyze variations within countries do not provide a solution for this research question. This is not to say that democracy do not matter, in fact, in his recent study Lee (2022) discusses how democracy has direct and indirect effects related to public health provision. It is to say however that if we control for democracy in Ecuador and Colombia, the variations in policy outcomes are still a puzzle that cannot be justified using democratic explanations.

Ethnic diversity: harming public goods (health) provision?

Scholars have argued that ethnic diversity negatively effects the provision of public goods, particularly in developing countries for years (Lieberman, 2009; Arriola & Grossman, 2021). In India, ethnic diversity was proven to have a strong, negative effect in HIV/AIDS policy (Lieberman, 2009, p. 235). According to the author, because of the ethnic divisions inside the country, the Indian government was unwilling to provide policies for HIV/AIDS due to possibilities of confrontation with other political and ethnic movements and fear of resistance to those policies (Lieberman, 2009).

This ethnic division argument can also be applied to Ecuador and Colombia. Both countries have high ethnic fractionalization, which could be influencing the efficiency of obesity and overweight policies in both countries. According to the theory, we should presume that Colombia presents higher ethnic fractionalization, which makes the country less successful on providing effective policies due to a lack of trust and compliance of some ethnic communities (Arriola & Grossman, 2021).

The Ethnic Fractionalization Index provides an overview of the most fractionalized countries, understood as "the likelihood that a pair of randomized people will be from two different ethnic groups or speak two different languages within a country" (World Population Review, 2023). According to the index, Ecuador's ethnic fractionalization is at 65.5%, whereas Colombia's fractionalization lies under 61% (World Population Review, 2023). Ecuador has more ethnic diversity than Colombia despite having less population and being a smaller territory. In other words, Ecuador has a high concentration of different ethnicities inside the country, and despite that is still performing better at obesity and overweight policy efficacy than Colombia.

Another explanation that is also linked with ethnicity and is particularly interesting in the Latin American context is the percentage of indigenous people within a country. According to the theory, indigenous populations face different inequalities when it comes to the provision of goods and services from their country (Harding & Oetzel, 2019; Camacho, Catro & Kaufman, 2006). When applied to health interventions, indigenous peoples tend to offer more resistance (Huencho et al., 2020;) and states need to consider how to adapt policies to these communities in order to increase its effectiveness and reduce inequalities (Harding & Oetzel, 2019, p. 2). Therefore, increasing political

participation of indigenous parties and communities has proven to be an effective measure to reduce mistrust and inequality, increase cooperation and produce better health policies (Huencho et al., 2020;)

Not only that, but indigenous communities are also more affected by the DBM, (Ramirez-Zea et al., 2014) meaning that DBM-related policies can specifically boost their efficacy if they target these communities. The last censuses available for the Latin American region showed that 3.3% of the total population of Colombia identifies as being part of the indigenous community, whereas in Ecuador, the total goes up to 7% (The World Bank, 2015).

If ethnic diversity affected health outcomes and indigenous communities are more affected by the DBM, we should see Colombia with more effective policies in place than Ecuador. However, this is not the case

Education: from public health indicators to bureaucracy level

As I mentioned in the theory section, education is a complex variable. Whereas better education contributes to less undernourishment, it also speeds up the number of overweight and obesity population (Soriano & Garrido, 2016; Kibria et al., 2020; Guevara-Romero et al., 2022).

However, the purpose of this thesis is not to investigate whereas more educated population are healthier, but rather how and if education levels affect obesity policy and its effectiveness. Therefore, I will focus on the education levels of those who are in charge of producing policy, the bureaucrats. According to the World Bank Worldwide Bureaucracy Indicators, Colombia and Ecuador have similar bureaucracy education scores (The World Bank, 2021). For example, in Ecuador the percentage of individuals with primary education as a share of public paid employees was 4% , whereas in Colombia it was a 2%. For secondary education, the scores are 49% vs 47%, and for tertiary education Colombia is at 81% versus a 73% score for Ecuador (The World Bank, 2021). In that sense, education is not a good explanation to understand why could Ecuador have better obesity policies than Colombia. From one hand, research in education concludes that it is a good indicator for policy quality of the state in general, not for nutrition policies specifically (Bwenge, 1998; Dasandi & Esteve, 2017). Secondly, even

if we could apply education explanations to nutritional policy, in the case of Colombia and Ecuador the education levels of the bureaucracy do not differ significantly from one country to another (The World Bank, 2021).

Economic growth

Following recent literature results, GDP per capita is used as the measurement variable instead of economic inequality or other economic measures because it has showed strong positive effects on health (Lee, 2023, p. 19).

PROCESS-TRACING: STATE CAPACITY AND PATH DEPENDENCY

Theories of path dependence have shown that path dependency is often represented as the causal factor of long-term health policy stability and health reform incrementation (Hornung & Bandelow, 2021). In Latin America, most states have the basic features to promote some degree of stability, with a certain bureaucratic scope, and basic administrative and ministerial divisions (Soifer, 2015). When governments count with a historical positive attitude of their bureaucracy to benefit state-building practices, the creation and implementation of policies becomes smoother over time (Soifer, 2015). This is particularly interesting in the case of Ecuador.

The country does not have better education, economy, ethnic stability or democracy scores than Colombia. In addition, indicators show that Government Effectiveness is higher in Colombia than in Ecuador, with a difference of 8.6% between the two (The World Bank, 2021). Most of the data points towards the fact that Colombia should have more and better obesity and overweight policies and yet it is the other way around.

Path dependency shows how this is possible. First, Ecuador's health bureaucracy is bigger than Colombia's, with the double of healthcare workers as a share of public total employees, and a 63% versus 9% difference on public sector employment as a share of paid employment in the health industry (The World Bank, 2021). Moreover, Ecuador is prioritizing health expenditure and has developed a broader national plan to tackle nutritional problems than Colombia, which would not be at this stage without the existence of structures and similar mechanisms and reforms from before.

The fact that Ecuador is still dealing with high levels of undernutrition, a pathology that was highly prevalent in low and middle income countries years ago have facilitated the arena for the introduction of other nutritional policies. The fact that both underweight and overweight fall under the worldwide problem of malnutrition, also known as the Double Burden has created momentum for Ecuador to develop policies for overweight and obesity that are effective, because the structures and institutions were already in place for one of the burdens. Not only that, but the fact that Colombia has not been effective in the implementation of marketing and tax restrictions on ultra-processed foods and sugar-sweetened beverages can also be explained by path dependency theories. In countries where advocacy networks and interest groups are more powerful, the implementation of

new policies of action that affects them will be more difficult due to its voice and power within the government (Hornung & Bandelow, 2021).

CONCLUSION AND FUTURE RECOMMENDATIONS

This comparative case study has analysed the effect of path dependency on nutritional policy development and effectiveness in developing countries. More specifically, the research has focused on investigating why Ecuador had more and better obesity and overweight policies than Colombia despite that the former was also experiencing severe undernutrition.

Whereas we could expect Colombia performing better at implementing policies to reduce overweight than Ecuador due to them not experiencing the Double Burden of Malnutrition, results show that this is not the case. Path dependency and state capacity explanations provide the answer to the puzzle, presenting arguments on why Ecuador is doing better at tackling both issues at the same time.

The failure on implementation of nutritional policies to fight obesity in Colombia should not be considered as a policy failure only affecting nutrition governance, but rather, it should be seen as a problem of the state lacking the basic structures and functions to produce effective policies in the public health sector (Hiilamo & Glantz, p. 244, 2015). Colombia should aim for reducing the power that advocacy networks and companies have inside their institutions and increase the institutions and structure of their health system to create better and more effective policy solutions for its population.

This thesis comes with its limitations, and results should be carefully interpreted. First, as stated under the outcome variable section, no concrete, high quality measurement tool was found to correctly evaluate the effectiveness of Ecuador and Colombia's overweight and obesity policies. Moreover, more research on other alternative explanations like government effectiveness, aid or economic status is needed in order to exclude possible causations that are not included in this thesis.

Finally, more research is needed in developing countries to understand the link between good politics and nutrition outcomes, especially in Latin America, where NCDs and overweight scores are increasing alarmingly. Organizations like INFORMAS, the Scaling Up Nutrition Movement, or the GINA tool developed by the World Health Organization should extend their scope to include more data in regard to the effects of the Double Burden of Malnutrition. Moreover, nutritional governance and health scholars should keep developing new methodologies and frameworks, and help extending the actual ones

to other countries and variables. If high reliable tools are implemented in developing countries, researchers can better analyse policy development and effectiveness, meaning that governments can improve their effectiveness in reducing overweight and obesity in a faster, and better cost-effective way.

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