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Dismantling of Obesity-Related Policies

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Chapter 1. Introduction and specific aims

Obesity is a major, preventable public health problem with serious consequences for morbidity and mortality.[1–7] In the United States, 40 percent of adults and 19 percent of youth live with obesity, with disparities by race, ethnicity, and geographic location.[8,9] Obesity leads to a multitude of negative health outcomes, including psychosocial problems (e.g., stigma and discrimination), increased risk factors for chronic disease (e.g., insulin resistance, increased blood pressure, dyslipidemia, inflammation), increased morbidity (e.g., cancer, cardiovascular disease, diabetes), and increased risk of death.[10] The high obesity burden also comes with a high economic cost due to healthcare expenditures ($160 billion in 2019 dollars), work absenteeism, disability, and premature death.[11–14] Although there are many evidence-based interventions to address obesity,[10,15,16] most Americans do not adhere to the existing dietary and physical activity guidelines.[17–19]

Individual dietary and physical activity behaviors are influenced by a myriad of social, environmental, and policy contexts, which are often not conducive to making healthy choices.[12,20,21] Personal responsibility for health plays a role but is insufficient as an explanation for lack of progress on obesity prevention. Roberto et al.[22] outlined the biological, psychological, social, and economic vulnerabilities that interact with an obesogenic environment and prevent people from being able to achieve long-term health gains. They highlighted the vicious cycle of obesogenic environments shaping personal preferences for unhealthy behavior, which then reinforce the obesogenic environments, and called for policy, civil, and industry action to break the cycle.

Obesity policy action is a key ingredient for success in improving population health.[23] Policies targeting obesity have a large potential for population impact as they address upstream determinants by influencing economic, physical, and social environments.[20,24] Due to the complex nature of mechanisms that cause obesity, the landscape of obesity policy interventions cuts across multiple sectors (e.g., agriculture, planning) and levels.[11,25–28] Many obesity-related policy interventions are also integrated within broader public social safety net programs (e.g., food assistance, health care programs).[11] Examples of obesity policies at the federal level include reimbursement for treatment in public health insurance programs, national social marketing programs, nutritional standards for foods sold in schools, restrictions on food marketing, and obesity surveillance programs.[11] Examples at the state and local levels include financial incentives for healthier food outlets, school wellness policies, menu labeling, and physical education in schools.[29]

Ensuring that enacted social policies reflect existing scientific knowledge is essential but challenging. Researchers and policymakers exist in distinct cultures, operate according to different timelines and priorities, and use different decision-making processes.[30] Though policymakers and policy advocates value and seek out scientific evidence for use during policymaking, the process of generating scientific evidence is not well aligned with the policymaking process.[30–35]A growing body of literature exists on the translation of obesity-related knowledge into policy (i.e., use of evidence in policymaking,[36] quality of dissemination materials,[37] key stakeholder attitudes and preferences[33,34,38–40]) and patterns and predictors of obesity policy enactment.[41–50] There is also a substantial evidence base for what works in translating evidence into policy in general.[51] In addition, the field of obesity prevention has

generated an increasing amount of literature regarding the process and determinants of enactment of obesity policy.[41,45,55–57,46–50,52–54]

De-implementation is a concept related to putting policies and programs in place (Table 1.1). The field of medicine is a source of growing literature on de-implementation of ineffective or harmful clinical practices and uses a wide set of terminology to refer to the phenomenon, such as de-adoption or disinvestment, among others.[58] De-implementation is also beginning to emerge in the field of public health,[59] and a related novel area of research, mis-implementation, examines both ineffective public health programs that should be ended but are kept in place and effective programs that are discontinued but should be sustained.[60] A major impetus for the study of de-implementation and mis-implementation in public health is the need for efficient and effective use of the resources available, which are often not maintained at a sufficient level and often experience reductions.[61,62]

Table 1.1 Definitions of dismantling, preemption, de-implementation, and mis-implementation.

Term	Definition	Related terms[1]
Dismantling	Decrease, diminution, or elimination of existing public policies. Passive dismantling refers to not updating a policy area based on changing external conditions, (e.g., inflation). Active dismantling involves policy change.[63,64]	Termination, retrenchment, deregulation.[63]
Preemption	When a higher level of government restricts or withdraws the authority of a lower level of government to make policy on an issue.[65] This action most often effectively repeals existing policies at the lower level.	None
De-implementation	Discontinuation of interventions that are ineffective, harmful, or less effective or efficient than other interventions.[59]	Deadoption, disinvestment, discontinuation, abandonment, reversal, disnovation, among others.[66]
Mis-implementation	Ending effective programs and policies prematurely or continuing ineffective ones.[60,67]	None

1 Terms that are also used in literature and have some overlap with terms used in this dissertation or are synonyms.

Much less is known, however, about the factors that shape public health policy dismantling, defined as an active or passive decrease, diminution, or elimination of existing policies,[64] and virtually nothing is known in the field of obesity control. Scientific inquiry into the process of dismantling of public health policies can build on the existing literature in other fields. This literature draws on three areas of public policy research—policy termination, welfare state dismantling, and deregulation—which have been recently consolidated under the banner of policy dismantling by Bauer et al.[68] Insights from research examining social welfare reforms and healthcare de-implementation suggest that there may be key differences between the processes of policy enactment and dismantling, with distinct drivers, leaders, and landscapes of stakeholders and interest groups, and difference in inherent political risk.[63,69,70] Theories of policy feedback and incrementalism [71,72] also show that political landscapes change after a policy is in place for some time, leading to distinct risks and barriers associated with removing or reducing government programs or policies. This necessitates examination of policy dismantling in its own right, separately from enactment, in order to inform both efforts to prevent the dismantling of policies that are effective, as well as to facilitate the dismantling of policies that are ineffective or harmful (e.g., agricultural subsidies for corn, BMI report cards).

The existing literature on policy dismantling and the emerging interest in de-implementation of public health interventions presents a unique opportunity for the study of dismantling of obesity-related policies, in that it can be supported by existing empirical and theoretical work from other fields, yet can fill an important gap in the literature. Three key literature gaps inform future study of obesity-related policy dismantling:

1. Though there has been some examination of policy dismantling in the area of health,[73–78] it has not been systematically reviewed or synthesized. This emerging literature, heterogeneous in terms of disciplines and methods, can serve as a starting point for examining obesity-related policy dismantling, about which virtually nothing is currently known.
2. Instances of obesity-related policy dismantling exist at all levels of government (e.g., roll-backs of the federal Healthy, Hunger-Free Kids Act provisions for schools,[79] discontinuation of BMI Report Card policies at state or school district levels,[80] county repeal of sugar-sweetened beverage taxes [81]). However, no existing studies (with the exception of state-level preemption of local nutrition policies)[82] characterize the phenomenon, estimate its prevalence, or identify determinants of obesity-related policy dismantling.
3. Given that policy dismantling is an emerging area of inquiry in public health research, few tools to study it exist, and those that do may not be directly applicable to obesity-related policies.[83,84] Policy dismantling has previously been conceptualized as a form of policy change, i.e., changes to policies that remove their number, or reduce their instruments or scope.[20] Additional information about the actors involved and level at which dismantling action takes place, particularly from sources that deal with policies and instruments relevant to obesity prevention would facilitate the study of obesity-related policy dismantling.

To address these gaps in the literature, this dissertation will address the following **specific research aims** in the form of three papers:

1. Summarize the extent, range, and nature of evidence regarding the determinants, characteristics, and outcomes of dismantling of health-related policies, and examine the methodological strengths and weaknesses in this body of literature, using a scoping review. (Paper 1)

2.1. Identify the effect estimates of proposed and successful dismantling of state-level legislation focused on obesity-related contexts of consumption in the period 2009-2018. (Paper 2)

2.2. Identify policy- and state-level predictors of dismantling of state-level legislation focused on obesity-related contexts of consumption in the period 2009-2018. (Paper 2)

3. Develop a framework for assessing dismantling of state-level legislation focused on obesity-related contexts of consumption and provide additional context regarding the actors, strategies, and motivations. (Paper 3)

Chapter 2. Background and key concepts

2.1 Obesogenic environments

Obesity is most proximally determined by energy intake, energy expenditure, and genetics.[10] The individual-level determinants are situated in an interconnected web of influences. The organizing framework of levels of influence on individual obesity-related behaviors from the Institute of Medicine's report *Accelerating Progress on Obesity Prevention* [12] organizes determinants of obesity by level and sector and influence. Individual and family factors are situated in behavioral settings including communities, worksites, healthcare settings, and school-based settings. Several sectors influence the environment that individuals experience in these settings (e.g., agriculture, education, media, land use and transportation). This helps to understand how an unhealthy or so-called **obesogenic environment** can lead to high population prevalence of obesity. Obesogenic environments are driven by strong economic and social influences and make it difficult for individuals to make healthy choices, predisposing them for excess weight.[12,20]

The broad definition of the food environment includes 'physical, economic, policy, and sociocultural surroundings, opportunities and conditions that influence people's food and beverage choices and nutritional status,' based on the INFORMAS Framework.[85] Three main influences shape the food environments in which people make choices:[85] The food industry overwhelmingly shapes what is available and at what quality and price, generates demand for certain foods, and influences norms and beliefs. Government actions at multiple levels structure the rules under which the food industry must operate, incentivize certain actions, and influence norms. The society sets the cultural norms around food and eating. These three food environment

influences interact with each other both in shaping the food environment, as well as setting agendas around food environment policymaking (e.g., including lobbying).[85]

2.2 Obesity-related policies

A broad definition of **public health policy** includes both "Big P" policies—laws, rules, regulation, or guidelines implemented by government—and "little p" policies—rules, practices, funding, and other normative behaviors and expectations in a particular organizational setting.[86] This dissertation adapts Longest's definition and uses the term policy to narrowly refer to public policy, or actions of government officials that are intended to influence the actions, decisions, or behavior of others, with particular focus on the legislative and executive branches of government.[86,87] Policy action can take place at several levels, including federal, state, county, or city/municipal. The policymaking process is complex and interactive, and includes several stages that feed back into each other: prioritization, formulation, enactment, implementation, and evaluation and modification.[86] Policymakers are defined as elected or administrative officials at any level of government.

The landscape of **obesity policy** interventions is vast. This is reflected in the prominent examples of U.S. food, nutrition, and physical activity policy strategies that have recently been catalogued across several levels of government.[11,25,26] The framework developed by Sacks et al.[27] is useful for developing systematic governmental action related to food and physical activity environments that breaks down policy areas by sector and government level. The food system sectors are comprised of primary production, food processing, distribution, marketing, retail, and catering/food service. The physical activity environment sectors are comprised of infrastructure and planning, education, employment, transport, and sport and recreation. Specific actions can be

identified for each sector by level of action (organizational, local, state, national, and international).

Although federal policy action garners considerable media attention, state and local action remains on the forefront of innovation in public health policymaking.[88] The existing studies of state-level obesity policy in the United States show, however, that not all policy options are used at the same frequency and their use exhibits geographic variability.[41,43,44,47,57,89] Policies are more likely to be enacted if they include topics that deal with public transportation, physical activity built environment (e.g., trails, walking and biking paths), safe routes to school, and educational programs or initiatives, while enactment of food and beverage tax or menu labeling policies is less likely.[41,43,89] The work of Shroff et al.[57] also shows that some policy instruments may dominate in enacted obesity policies. They analyzed state policies related to school food environments between 2001 and 2006, and they found that instruments that rely on information provision by government (e.g., public information campaigns) and the coercive power of government (e.g., regulation) were more prevalent. These patterns may also be present in other obesity policy areas.

The process of policy adoption also reflects the competing priorities faced by the policy actors, which often results in policies that are not well aligned with what works in obesity control.[36,90] Johnson et al.[40] and Brescoll et al.[91] have documented that obesity-related policies that are rated highly for expected impact by researchers are often rated poorly by policymakers in terms of feasibility. Dinour et al.[56] also showed how strong competitive food policies are often weakened during policy negotiation in order to increase buy-in from stakeholders and increase possibility of enactment.

2.3 Policy components and instruments

Howlett's [92] work breaks down public policies into components that are important for policy design and implementation, and presents a taxonomy of policy implementation instruments. Table 2.1 displays Howlett's [92] main elements that comprise public policy content, broken down by two policy components—policy goals and means, which exist at several levels. This reflects the complex nature of policy content, which informs both the intent of the policy and how it is meant to be implemented. Howlett's breakdown of policy content is useful for understanding and measuring policy characteristics.

Table 2.1 Components of public policies involved in policy design

		Policy level		
		Governance mode: high-level abstraction	Policy regime: program-level operationalization	Program settings: specific on-the-ground measures
Policy component	Policy goals	General abstract policy aims	Operationalizable policy objectives	Specific policy targets
	Policy means	General policy implementation preferences	Policy tool choices (specific types of governing instruments)	Specific policy tool / instrument calibrations

Adapted from Howlett[92]

Policy tool choices, or policy instruments, are implementation tools for carrying out the intention of policies.[92] Table 2.2 displays a taxonomy of policy instruments presented by Howlett.[92] They are divided into substantive instruments, which affect the day-to-day activity of society, and procedural instruments, which affect the behavior of actors involved in policy implementation. They are further organized by the type of governing resource, where Howlett[92] built on the work of Hood.[93] Information instruments use government communication of information to change behavior of societal actors (e.g., nutrition labeling) or those active in the policy process (e.g., freedom of information legislation). Authoritative instruments use the coercive power of

government to encourage or prevent (or regulate) certain behavior of societal actors (e.g., restrictions of marketing of unhealthy foods to children), or they provide preferential treatment to specific actors in the policy process (e.g., requiring school districts to have wellness councils). Treasure or financial instruments transfer financial resources to and from societal and policy actors to encourage them to perform or prevent them from taking a certain action (e.g., sugar-sweetened beverage taxes). Organizational instruments use government institutions and personnel directly or indirectly to produce and distribute societal goods and services (e.g., public health department services) or involve organization and reorganization of government to alter policy processes (e.g., including an oversight committee for an agency).

Although policies often use several instruments to accomplish their goals, these policy instrument distinctions are important insofar as policy dismantling may proceed differently by instrument type and may require differing strategies.[69,94]

Table 2.2 Taxonomy of substantive and procedural policy tools and instruments

		Governing resource			
		Information	Authority	Treasure	Organization
Purpose of tool	Substantive	Public information campaigns	Independent regulatory agencies	Subsidies and grants	Public enterprises
	Procedural	Official secrets acts	Administrative advisory committees	Interest-group funding	Government reorganizations

Adapted from Howlett[92]

2.4 Policy dismantling

Policy termination literature originally defined policy dismantling rather narrowly as the "deliberate conclusion or cessation of specific government functions, programs, policies, or organizations," while excluding budget-driven actions to reduce the size or scope of policies or public programs or passive policy termination.[95,96] Recently, efforts have been made to expand

this definition by drawing on the vast existing literature on dismantling of welfare states and deregulation.[68] This dissertation uses a definition adapted from this work by Bauer & Knill[64] to define **policy dismantling** as an active or passive decrease, diminution, or elimination of existing public policies, with a specific focus on "Big P" policies (i.e., formal legislative or regulatory policies of government). This broader definition is adopted here because of the early stage of policy dismantling literature in public health, with the intention of potentially narrowing this definition in later works to focus on active policy dismantling processes and including the valuation of policies by their evidence base (like in definitions of de-implementation in health discussed above). Similar to the concept of mis-implementation, this dissertation's definition of policy dismantling includes instances of dismantling of effective policies that should be kept in place, as well as efforts to dismantle policies that are ineffective or harmful.

Bauer & Knill [64] define policy dismantling as a type of policy change, which moves in the negative direction, opposite of policy expansion. Similar to Howlett's [92] policy components (Table 2.1), Bauer & Knill use three levels to examine policy dismantling: policy presence, policy instruments, and settings of policy instruments. Policy instrument settings are further divided into instrument level (calibration of the instrument, e.g., amount of tax on sugar-sweetened beverages) and instrument scope (number of cases or target groups addressed by policy, e.g., reach of a government-run nutrition education program). Table 2.3 adapts Bauer & Knill's [64] measurement framework based on these levels, which also incorporates the magnitude of policy change. One can measure changes in density, which refers to a change in the number of policies (policy density) or instruments (instrument density) over time. In addition, one can measure changes in intensity, relative strictness or generosity of the policy. This can be

substantial (changes in instrument level or scope) or formal (changes in administrative or procedural capacities).

Table 2.3 Dimensions and indicators of policy dismantling

Dimension		Indicators
Density	Policy density	Change in the number of policies over time
	Instrument density	Change in the number instruments over time
Intensity	Substantial intensity	Change in instrument level Change in instrument scope
	Formal intensity	Change in administrative capacities Change in procedural capacities

Adapted from Bauer & Knill[64]

This measurement framework is beginning to be used in health policy empirical literature,[83,84] and it is incredibly useful for capturing the complexity of policy dismantling beyond the binary measurement (dismantled, not dismantled) that has been previously criticized by policy termination scholars,[63,97] who viewed dismantling on a continuum of actions.

2.5 Study conceptual model

This dissertation draws on multiple theoretical frameworks [64,98–100] and empirical studies [41,45] examining enactment of obesity-related policies to organize data collection and analysis in Chapters 4 and 5. Figure 2.1 displays the conceptual framework guiding this dissertation. Bauer & Knill's [64] Analytical Framework of Policy Dismantling was adapted to provide the structure.

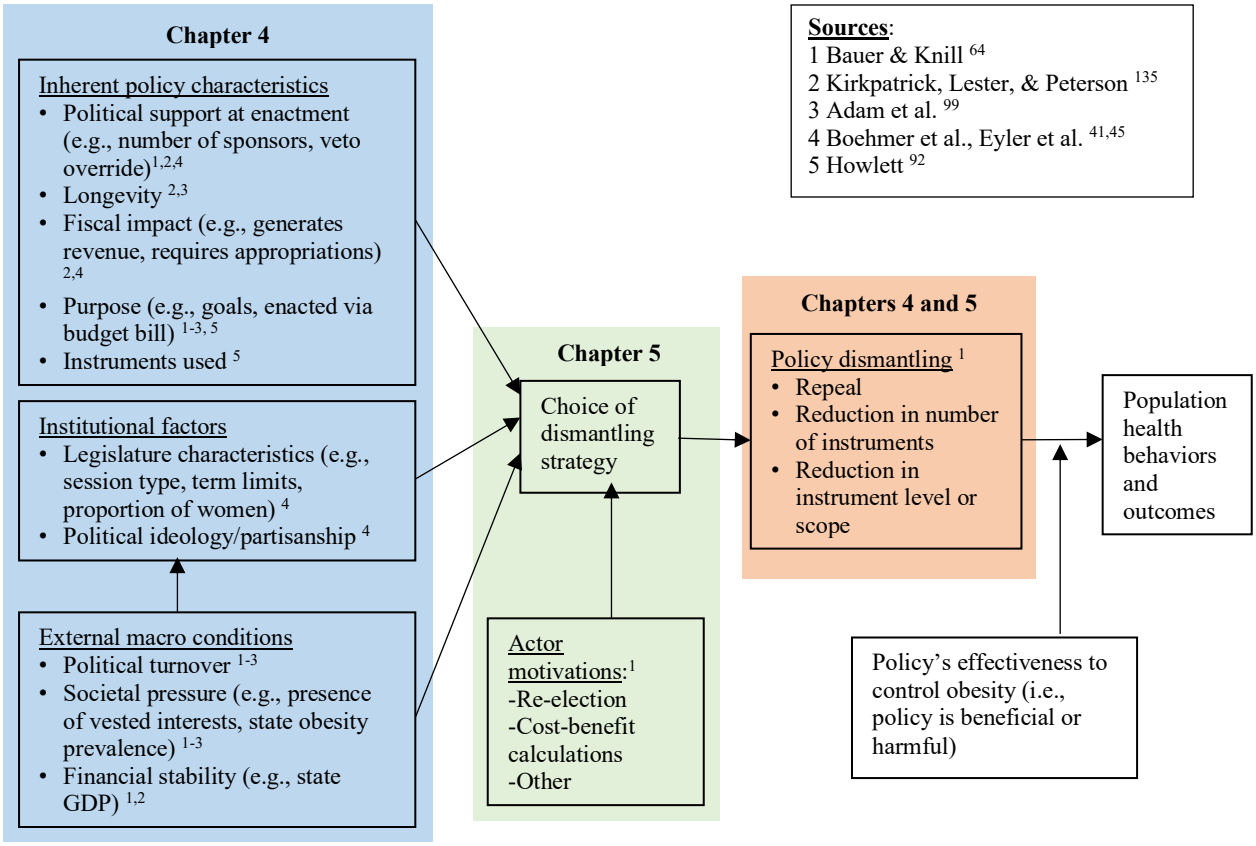

Figure 2.1 Conceptual framework for dissertation

Chapter 4 will examine the relationship between policy- and state-level variables and policy dismantling. The pathway between determinants identified in Chapter 4 and policy dismantling presumably works through dismantling actors' choice of dismantling strategies, which in turn are influenced by their motivations. These will be explored in Chapter 5. Chapter 5 also presents a framework for assessment of dismantling of state-level policies focused on the context of consumption.

Chapter 3. Dismantling of health-related policies: A scoping review

3.1 Background

A growing body of scholarship exists on the translation of obesity-related knowledge into policy and enactment of obesity-related policies. The literature has covered a range of related topics including: use of evidence in obesity policymaking,[36] quality of materials developed for policy dissemination,[37] perceptions of what works in translation of obesity research into policy,[101,102] and related key stakeholder attitudes and preferences,[33,34,38–40] In addition, several studies have examined the patterns of obesity policy enactment,[41–44,47] predictors of enactment,[41,45–50,52] facilitators and barriers to enactment or adoption of policies,[53,54] and content of obesity policies.[55–57] However, to the author's knowledge, no studies exist of dismantling of obesity-related policies, though policy dismantling has been examined in other health-related fields.

To some extent, studies of obesity policy enactment provide lessons for studying policy dismantling. These studies show that some obesity policy topics and specific obesity policy instruments leads to higher likelihood of enactment.[41,43,57,89] Policies rated as effective by researchers may not be rated as the most feasible by policymakers,[91,103] illustrating the need to pay attention to policy characteristics (e.g., acceptability, understandability) when prioritizing policy actions.[28,53,104] Additionally, presence of existing similar policies, absence of term limits, bipartisan and committee support, sponsorship by senior policymakers, support from key stakeholders, and absence of powerful lobby groups contribute to the enactment of obesity policy.[41,45,53]

However, insights from de-implementation literature and literature on the dismantling of social safety net policies suggest that there may be key differences between policy enactment and dismantling. Distinct factors drive de-implementation and implementation of clinical practices, and there are differences in the leaders of the two processes.[70] Social safety net policy dismantling literature has shown that dismantling involved more political danger than enactment, potentially due to resistance from powerful interest groups that were created by the existing policies.[63,69] The similarities and differences between policy enactment and dismantling, however, remain unclear. This necessitates examination of policy dismantling in its own right.

Despite the emergence of a body of literature on obesity policy dissemination and adoption,[33,34,38,39,101,102] virtually nothing is known about dismantling of obesity-related policies. The emerging literature in the broader field of health-related policy dismantling can serve as a starting point for examining obesity-related policy dismantling. In order to examine what is known about dismantling of health-related policies to date, and given the methodological and disciplinary heterogeneity in this body of literature, this chapter reports the results of a scoping review [105] that seeks to: 1. Summarize the extent, range, and nature of evidence regarding the determinants, characteristics, and outcomes of dismantling of health-related policies. 2. Examine the methodological strengths and weaknesses of this body of literature.

3.2 Methods

The studies considered for this scoping review examine the characteristics, determinants, and outcomes of policy dismantling in the health area and were published in the past 20 years. The period of 20 years was chosen, because although the early study of policy dismantling (called termination at the time) began in the 1970s, it really launched after the publication of Pierson

(1994)'s [69] seminal work on dismantling the welfare state in the mid-1990s.[63] The methods for the scoping review are based on Peters et al.[105]

The process of selection of studies for review is illustrated in Figure 3.1. Initially, potential studies were identified through a literature search of relevant terms, of which duplicates were removed. Records' abstracts were initially screened based on inclusion criteria and followed by a full-text screening. The resulting records were included in the review.

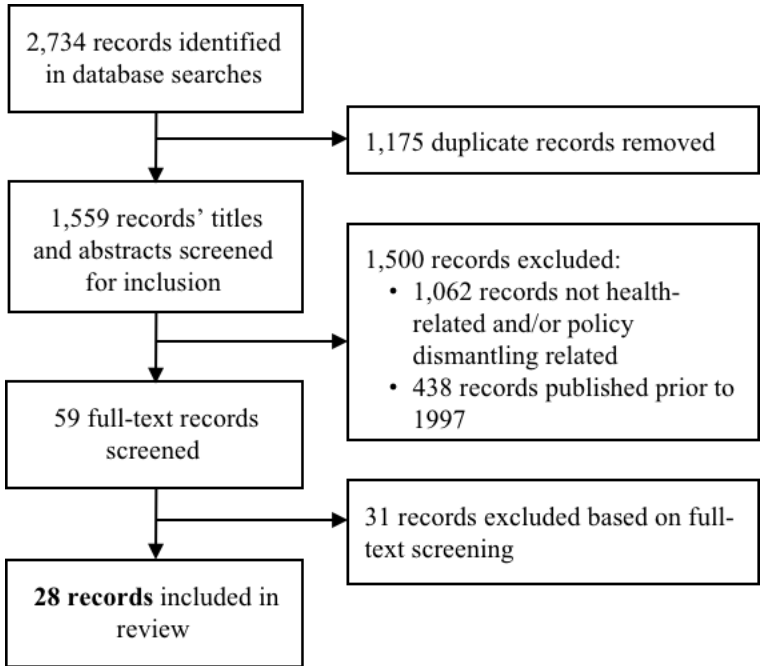

Figure 3.1 Identification and selection of studies for systematic review

Identification of studies

Table 3.1 lists the search terms and literature databases used to identify studies. The search terms were identified and adapted from relevant implementation and policy science literature to capture studies dealing with policy dismantling and de-implementation.[58,59,63,66] Potential search terms for dismantling were systematically pilot-tested in the Scopus database to narrow down

combinations that maximized the number of relevant results while minimizing duplicate or unrelated results. The final search string was adapted to each literature database. In addition, where possible in each database, studies were limited to articles in the English language and published in peer-reviewed journals within the last 20 years (1997-2016). A wide range of literature databases was searched to capture policy-relevant research and resulted in 2734 records, from which 1175 duplicates were removed, resulting in 1559 identified records.

Table 3.1 Search terms and literature databases used for study identification

Search terms (adapted for each database)	(TITLE-ABS-KEY ((polic* W/3 terminat*))) OR (TITLE-ABS-KEY ((polic* W/3 dismantl*))) OR (TITLE-ABS-KEY ((polic* OR program OR law OR rule) W/3 retrenc*)) OR (TITLE-ABS-KEY (((polic* OR act OR program) W/3 (defund OR defund*)) AND (governmen* OR politic* OR public OR state))) OR (TITLE-ABS-KEY (((polic* OR law OR regulation OR act OR rule) W/3 (repeal OR repeal*)) AND (governmen* OR politic* OR public OR state)))
Literature databases	Academic Search Complete, Scopus, Proquest Social Science Premium Collection, Scopus, Web of Science; including Medline, EconLit, PsycINFO, Pais International, Applied Social Sciences Index and Abstract, Family & Society Studies Worldwide.

Selection of studies

Following identification, a two-step process was used to screen the identified records. First, titles and abstracts of each record were screened to determine whether the study met the inclusion criteria. Where inclusion determination was unclear, the record was provisionally included in the review. Second, full-text records were assessed for eligibility to determine if they met the inclusion criteria. A total of 1559 records were screened for inclusion, from which 1500 records were excluded based on title/abstract screening and 31 additional records excluded based on full-text screening, resulting in 28 records included in the review.

Table 3.2 lists the inclusion criteria used for selection of studies for the review. To be included, records had to be peer-reviewed empirical studies (including qualitative research that used systematic data collection and analysis); examine policies related to health (e.g., healthcare,

public health, mental health) or examine other policies while measuring health outcomes; and deal with policy dismantling, termination, defunding, retrenchment, repeal, or another kind of policy cessation. Studies that examined welfare changes broadly without separately examining the health-related welfare state policies, and studies of judicial repeal were excluded. Finally, this review focused on studies published within the last 20 years and in the English language.

Table 3.2 Inclusion criteria for selection of the studies

Design	• Presents empirical research. • For qualitative studies, uses systematic data collection and analysis.
Research area	• Deals with a policy related to health (e.g., public health, healthcare), or one that is explicitly proposed to affect health outcomes (e.g., environmental policy). • Deals with policy dismantling, termination, defunding, retrenchment, repeal, or another kind of policy cessation. • Studies dealing with welfare changes broadly without teasing out health changes are excluded. • Studies of judicial repeal are excluded.
Characteristics	• Presents peer-reviewed work • Is written in the English language • Published within the last 20 years, i.e., on or after 1/1/1998.

Data extraction

Table 4.3 lists the data that were extracted from the selected studies. Study data were extracted using a standardized form in Microsoft Excel. In studies that also included additional data collection or analysis components outside the inclusion criteria, only study components that met the criteria were extracted.

Table 3.3 Data extracted from selected studies

Administrative details	• Author, year of publication, title, journal • Research area
Study details	• Study objective or purpose • Methods: design, analysis, exposures, outcomes • Location • Main results
Measurement	• Terminology used to describe policy dismantling • Definition of policy dismantling • Measurement of policy dismantling
Policy details	• Policy details • Policy typology • Policy evidence based (as described by author) • Description of policy dismantling • Policy dismantling typology

3.3 Results

Study characteristics

Table 3.4 summarizes the characteristics of the reviewed studies. The primary focus of most studies was on the outcomes of policy dismantling, the majority of which evaluated the state-level repeal of motorcycle helmet laws in the United States (11 studies). The study design of the reviewed studies varied, and the majority took the form of a natural experiment. The studies were carried out in the United States, Europe, and New Zealand. Most studies evaluated dismantling of state-level injury-prevention policies that used regulation as its primary policy instrument (adapting Howlett's [92] typology of policy instruments). The majority of the studies did not characterize the evidence base for the policy or cite it as a reason for policy dismantling. Eight studies characterized the policy under study as effective, most citing evidence from individual studies (rather than reviews or guidelines), while one described conflicting results from individual studies. Where evidence for the policies or their repeal was discussed, it most often came from other U.S. states and most frequently from studies that utilized designs that were cross-sectional or had other limitations.

Table 3.4 Characteristics of studies included in the systematic review (N=28).

Characteristic	n
Primary study focus	
Outcomes of policy dismantling	20
Determinants of policy dismantling	5
Characteristics of policy dismantling	3
Study design	
Natural experiment,[1] interrupted time series[2]	3
Natural experiment,[1] pre-post on multiple units[3]	6
Natural experiment,[1] pre-post on a single unit[4]	8
Other observational,[5] longitudinal	3
Other observational,[5] cross-sectional	4
Qualitative	3
Predictive modeling	1
Policy dismantling type[6]	
Active	27
Passive	1
Policy target	
Injury prevention	14
Environmental health	5
Healthcare	5
Substance and alcohol use	2
Tobacco use	1
Occupational health	1
Policy evidence base	
Evidence base for policy not addressed in article	19
Policy described as effective based on individual studies	7
Policy described as effective based on national guidelines	1
Evidence base for policy is conflicting based on individual studies	1
Policy instrument[7]	
Regulation	16
Grant, contract, payment for service	4
Membership in organization[8]	2
Service provision	1
Multiple types	5
Policy level	
Multinational	2
National	4
State	17
Local	5
Study location	
United States	
National	2
Multiple states	3
Single state[9]	17
European Union	
European Union level	2
Single country (Denmark)	2
Multiple OECD countries	1
New Zealand	1

[1] Natural experiments investigate a naturally occurring exposure over which the researcher has no control and include experimental elements such as temporality or ruling out competing explanations (e.g., using a comparison group) to bolster causal inference.[106]
[2] A study which uses a string of consecutive cross-sectional measurements that are interrupted by change in exposure to examine changes in slope or intercept of the time series as a result of the exposure.[106]
[3] A study using on multiple units of analysis, which uses a single measurement before and after a change in exposure.[106]
[4] A study using a single study unit of analysis (e.g., one state), which measures the outcomes once before and once after a change in exposure.[106]
[5] Other observational designs are defined as studies that do not include structural elements of experimental designs such as comparison groups, temporality, or efforts to rule out competing explanations.[106]
[6] Passive dismantling is defined as not updating a policy area based on changing external conditions, e.g., inflation. Active dismantling involves policy changes.
[7] Policy instrument typology was adapted from Howlett.[92]
[8] For example, municipal government membership in Cities for Climate Protection, which requires a commitment to a milestone process for greenhouse gas emissions reductions, and provides municipalities with support and technical assistance.[107]
[9] Arkansas, California, Florida, Illinois, Louisiana, Michigan, Mississippi, Missouri, Oregon, Pennsylvania, and Washington.

Conceptualizing policy dismantling

The studies differed based on the terminology used to describe policy dismantling: 16 referred to repeals, six used policy termination, three used retrenchment, two used policy dismantling, and one studied defunding of a state program. Of these, nine studies explicitly defined the terminology that was used.[73,74,76–78,83,84,107,108] Table 3.5 summarizes the definitional elements used for policy dismantling, retrenchment, and termination and the sources of definitions cited by the studies.

Several studies examined dismantling as multiple policy changes comparatively.[77,78,83,84,108] Of the studies that examined a single policy change, 10 dealt with the removal of policy instruments,[73–76,107,109–113] while 14 examined reductions in instrument level and/or scope.[109,114,123–126,115–122] Examples of policy instrument removal from the reviewed studies include defunding of a state school-based tobacco cessation program [112] and a county decision to close or privatize a public hospital.[76] Examples of reductions in policy instrument level or scope

include repealing the universal motorcycle helmet law to only apply to riders younger than 21 years [125] or redefinition of welfare eligibility to exclude those with addiction disability.[115]

Table 3.5 Definitions of policy dismantling, retrenchment, and termination used in reviewed studies

Term	Definition items	Cited sources
Dismantling	▪ cutting, diminution, or removal of existing policy ▪ one possible direction of policy change, alternatives are expansion and maintenance ▪ can be active (performing an explicit action to dismantle a policy) or passive (not updating a policy area based on changing external conditions, e.g., inflation)	Jordan et al.,[94] Bauer & Knill[64]
Retrenchment	▪ actions to curb government spending or income ▪ actions intended to reduce the extent or quality of welfare programs, their financial viability, or their political or administrative capacity to pursue expansion in the future ▪ actions to make the welfare state less attractive to the beneficiaries ▪ can be grouped into policy (dealing with substantive resources) or institutional (reallocation of authoritative power resources for reorganization of and delegation of authority in programs) retrenchments	Pierson,[127] Green-Pederson[97]
Termination	▪ deliberate conclusion or cessation of existing government functions, programs, policies, or organizations	deLeon,[95] Daniels,[128] Brewer & deLeon [129]

Characteristics of policy dismantling

Four studies examined the characteristics and patterns of policy dismantling.[77,78,83,84] Two studies assessed the changes to and dismantling of environmental policies enacted at the European Union (E.U.) level,[83,84] while two assessed retrenchment of national healthcare policies in Denmark.[77,78]

Gravey & Jordan [84] examined changes in 19 environmental policy areas at the E.U. level between 1992 and 2014. They performed a document review of policies that have been openly targeted by politicians for dismantling, and coded policy changes based on the direction of change (i.e., expansion, status quo, and dismantling), two levels of change (i.e., policy or instrument change), and three dimensions of change—density (change in number of policies or

instruments), scope (number of topics or recipients covered), and settings (ambition of the item of legislation). They found that dismantling was the least frequent direction of policy change, though a high proportion of policies (16 of 19) experienced dismantling at some point in the study period. Dismantling was most often performed at the instrument level (e.g., removing standards for water pH level), and the different dimensions of the same policy sometimes changed in opposite directions (authors did not give example, but potentially removing water pH level standards, while at the same time increasing number of organizations that must comply), illustrating the importance of a multidimensional view of policy change.

In a similar study, Steinebach & Knill [83] tracked changes in clean air and water protection policies at the E.U. level between 1980 and 2014 as instances of expansion or dismantling. They found that expansion was a dominant pattern of policy change, while very small amounts of policy dismantling happened in 2001, 2004, and 2009 and only in the clean air policy area. They also examined patterns of net policy change and found that 2011-2013 was the longest period of policy inactivity possibly suggesting that passive policy dismantling was taking place.

Two related studies examined adopted laws in Denmark in the periods of 1975-2008 [77] and 1953-2009 [78] for whether they represented an expansion or a retrenchment of the healthcare policies. In addition, the latter study also distinguished between policy and institutional retrenchments of healthcare policies, while the former examined the effect of political ideology on policy retrenchment. Both studies found that approximately one-fifth of healthcare laws represented policy retrenchment. The results by Elmelund-Præstekær & Klitgaard [78] showed that policy and institutional retrenchments were equally represented, and that institutional

retrenchment was more likely in healthcare retrenchment than in labor retrenchment, but had a similar likelihood as in housing and education retrenchment.

Determinants of policy dismantling

Five studies examined the determinants of environmental and healthcare policy dismantling.[73–77] Two studied climate change policies, namely the Communities for Climate Protection and Carbon Neutral Public Service programs, one with the goal of determining the reasons for why the programs were originally funded and then terminated by the New Zealand national government,[73] and the other examining the association of city-level factors with the withdrawal of U.S. city governments from the programs.[74] Four studies examined the dismantling of healthcare-related policies, including stakeholder perceptions of the drivers of the dismantling of the Medicaid managed care policy in Mississippi,[75] explanations for county decisions to close or privatize public hospitals in California,[76] and the association between political ideology and healthcare retrenchment in Denmark.[77] Facilitators of health policy dismantling identified by several studies included fiscal or budgetary constraints and lack of perceived program effectiveness or quality of implementation. There is conflicting evidence for the role of political ideology in health policy dismantling.

Two studies retrospectively assessed the perceptions of key drivers of policy dismantling using semi-structured interviews with program managers and architects [73] and key stakeholders involved in policy implementation.[75] Birchall [73] found that even though national economic constraints and program inefficiencies may have played a role in the dismantling of the nationally-funded climate change program in New Zealand, the primary driver was political ideology of the new government in power. In Burson et al.,[75] the state Medicaid officials viewed

resistance from healthcare providers, while healthcare providers cited poor planning and communication problems as the main facilitators of the dismantling of a Medicaid managed care policy in Mississippi. In addition, the study found that lack of tangible benefits to recipients and Mississippi's health culture as contributing to dismantling.

Using a difference-in-difference analysis, Krause et al.[74] found that local political ideology and perceived program effectiveness, though not fiscal stress, were significantly associated with dismantling of city membership in voluntary environment programs in the United States. In the above-described study, Klitgaard & Elmelund-Præstekær [77] on the other hand did not find political ideology to be associated with retrenchment of healthcare policy at the national level in Denmark. In a non-experimental study, Graddy & Ye [76] also did not find state or national political ideology to be significantly associated with dismantling, though found that fiscal stress (state and county revenue growth, proportion of county budget allocated to healthcare), local workforce unionization, and market presence of private healthcare providers were associated with the county decisions to close or privatize public hospitals in California.

Table 3.6 displays the key determinants of policy dismantling present in the literature. These are organized into determinants that are modifiable and those that are difficult to modify. The table shows that although there exist determinants that are not easily modifiable, several determinants of policy dismantling are open to modification. These include program inefficiencies, poor planning, problems with communication about the program, resistance from providers, perceived ineffectiveness of the program, and lack of tangible benefits to participants.

Table 3.6 Determinants of policy dismantling by their degree of modifiability

Difficult to modify	Modifiable
▪ National economic constraints ▪ State health culture ▪ Local/state political ideology[1] ▪ Competition from private programs	▪ Program inefficiencies ▪ Poor planning ▪ Communication problems ▪ Resistance from program providers ▪ Perceived program effectiveness ▪ Lack of tangible benefits to program participants

[1]Conflicting evidence was found.

Outcomes of policy dismantling

Most studies of health policy dismantling focused on the health and health behavior-related outcomes of policy dismantling, of which more than half (11 studies) evaluated the state-level repeal of motorcycle helmet laws in the U.S.[114,116–121,123–125] Between 1966 and 1995, several federal changes occurred that created and reversed incentives for states to pass and maintain universal motorcycle helmet laws. This in turn resulted in a time period of state-level adoption and repeal of these laws across the United States that serves as an excellent policy dismantling laboratory and led to a large amount of scholarly work on related outcomes. All of the included studies found a negative impact on helmet use and though relationship to fatalities was mixed, the studies with more robust designs found an increase in motorcycle-related fatalities following repeals.

Other studies also examined the role of the dismantling of seat belt, gun control, occupational health, school-based smoking cessation, alcohol sale, and addiction disability policies on health outcomes and health behaviors.[109–113,115,122] With the exception of the repeal of Sunday alcohol sales, all policy dismantling was associated with higher negative health outcomes, societal costs, unhealthy behaviors, and workplace and other health risks. In addition, two studies examined

changes in government actions and policymaking context following dismantling of environmental and healthcare policies and found few significant relationships.[107,108]

Houston et al.[123] used an interrupted time series design to examine the relationship between motorcycle helmet laws with motorcycle-related fatalities from 1975 to 2004 in 50 U.S. states. They found that states that repealed universal motorcycle laws experienced a 12 percent higher rate of fatalities than states that maintained the laws, leading to an additional 615 motorcyclist fatalities in these states. A somewhat higher fatality rate increase was observed in Sass & Zimmerman,[124] an observational cross-sectional study of 50 U.S. states, which showed that repeal was associated with a 37 percent increase in fatalities. One study used the interrupted time series design to examine repeal of the universal motorcycle helmet law in Florida [118]. It found an a 21 percent increase in fatalities.[118] Several studies used an independent sample pre-post design on a single unit,[114,116,117,119–121,125] and found that motorcycle helmet law repeal was consistently associated with helmet use and motorcycle-related injuries but, with the exception of one study,[119] not associated with fatality rates. These studies were carried out in Pennsylvania, Michigan, Louisiana, Florida, and Arkansas. Finally, Carter et al.[109] modeled the projected outcomes of repealing a similar law, primary and secondary seat belt laws, in Michigan. They found that a full repeal could lead to 163 additional fatalities, 13,722 additional nonfatal injuries, and $1.6 billion in annual societal cost, while a partial repeal could lead to 95 additional fatalities, 9,156 additional nonfatal injuries, and $1.0 billion in annual societal cost.

Five other studies examined the relationship between policy repeals and health behaviors and outcomes.[110–113,115,122] Yoruk [122] used the difference-in-difference design to examine different degrees of legalization of Sunday alcohol sales in multiple states and found no significant overall

effect on alcohol consumption. Pizacani et al. [112] examined the effect of state-level defunding of school-based smoking cessation programs in Oregon and found that the pooled cohort from the defunded period had a 4 percent higher growth in smoking prevalence than that in the funded period. Foley et al. [113] demonstrated that the repeal of a Washington State ergonomics law led to higher workplace exposures to hazard of injury and fewer workplace actions to prevent it, but no effect on workplace injuries. Two studies examined the effect of Missouri's 2007 repeal of the permit-to-purchase handgun laws. Using an interrupted time series design, Crifasi et al. [111] found that the repeal resulted in a 4 percent higher firearm suicide rate in the general population and 15 percent higher firearm suicide rate among young adults in Missouri than in synthetic control states. Similarly, Webster et al. [110] found a 14 percent and 25 percent increase in homicide and murder rates, respectively, following the repeal in a pre-post study with a comparison group. Finally, in a qualitative study, Anderson et al. [115] carried out semi-structured interviews to examine the perceived effect of the federal dismantling of addiction disability benefits via the 1996 welfare reform on health problems, housing and other basic needs, and substance use of persons with addiction who previously received the benefits. The participants reported that the loss of benefits destabilized their housing situations and increased their risk of homelessness, and that the resulting complications worsened other problems including substance abuse.

Finally, two studies examined the influence of policy dismantling on subsequent policy actions [107] and the policymaking context,[108] and these found few significant relationships. Yi et al. [107] used a difference-in-difference analysis to examine the effect of U.S. cities' withdrawal from voluntary environment programs on subsequent administrative and policy commitments to environmental sustainability, and they found no effect. Giger [108] examined the relationship

between instances of healthcare policy retrenchment (i.e., actions to curb government spending or income) in a subset of OECD countries on subsequent popularity of incumbent governments. They found that healthcare retrenchment was not generally associated with government popularity, but association was present for voters who cared highly about the policy.

Study design

All included studies examined naturally occurring policy dismantling and therefore were observational. Among the studies of determinants or characteristics of health policy dismantling, one was a natural experiment using the pre-post design with multiple units and a comparison group,[74] three were observational longitudinal studies,[76,84,130] two were cross-sectional studies,[77,78] and two were qualitative studies.[73,75] The studies' research objectives were well matched to the research designs. Of the studies of health policy dismantling outcomes, sixteen were natural experiments [107,110,121–123,125,126,131,111–113,116–120] and four were other observational studies.[109,115,124,132] Among the natural experiment designs, three were interrupted time series studies,[111,118,123] of which two utilized comparison groups.[111,123] Five natural experiments used a pre-post design with multiple units of analysis,[107,110,112,113,122] of which most had a comparison group.[107,110,112,133] In addition, eight studies in this group [116,117,119–121,125,126,131] used an independent sample pre-post design on a single unit (e.g., comparing the prevalence of motorcycle fatality in one state before and after a policy change). Among the other observational studies group, one was a qualitative study,[115] two used a cross-sectional design,[108,124] and one used predictive modeling.[109] Several of the studies focused on dismantling outcomes included causal research objectives, particularly among the independent sample pre-post studies of a single unit [114,117,120,121,126] and cross-sectional [108,124] studies, despite the inadequacy of the research designs for making causal inferences.

The analyses carried out in the reviewed studies were largely appropriate for the selected study designs, for example difference-in-difference analyses were carried out to examine pre-post designs with comparison groups, and analytic approaches accounted for clustering. For the studies in which comparison groups were used,[74,107,111,112,122,123] though most did not describe or identify differences at baseline between the groups, all studies used relevant covariates to adjust their analyses in order to minimize group selection bias.

Sampling

The majority of the studies did not use a sampling method. Most either used a census of all units for which information was valid, or they restricted their analysis to one unit (e.g., examining the repeal of motorcycle helmet law in one state). The unit of analysis was most often the state, district, or city where policy dismantling took place. In addition, four studies included as their units of analysis individual policy actions (e.g., adopted laws) in specific policy areas and time frames.[77,78,83,84] Among the five studies [73,75,112,113,115] that used sampling methods, they included random, convenience, and purposeful sampling. One study [112] that included funded and later defunded school districts participating in a tobacco control program used random selection of non-funded districts as a comparison group. Foley et al. [113] used a mixture of unweighted and weighted random sampling of Washington workplaces at different survey waves. Anderson et al. [115] used a mixture of random, convenience, and venue-based sampling to recruit participants for their qualitative study. Finally, two qualitative studies [73,75] performed purposeful sampling of persons involved in the policy implementation.

For the reviewed quantitative studies, the participation and, where applicable, retention rates were high, with the exception of two studies. Yi et al. [107] achieved a high initial participation rate

at 90 percent, but their retention of cities across time was low at 41percent. Pizacani et al. [112] reported low participation rates for their exposed and comparison school districts, at 50 percent and 10 percent, respectively, and they did not report retention rates over time.

Measurement of policy dismantling

Despite the existence of a large number of theoretical frameworks of policy dismantling, the empirical studies included in this report largely did not draw on these works. Of the 28 reviewed studies, only five [73,74,76,83,84] explicitly referred to theoretical frameworks as guiding their research design, measurement, or data analysis. These included frameworks by deLeon,[134] Kirkpatrick et al.,[135] and Bauer & Knill [64] and its earlier versions.

The majority of the studies used a simple, most often binary, definition of dismantling. Of the 28 reviewed studies, more than half (16 studies) conceptualized policy dismantling as time, i.e., before and after policy dismantling. Several studies measured policy dismantling as an attribute of the state, which was allowed to vary over time in some studies. Most of the studies [74,107,108,122,123] used bivariate coding (i.e., terminated, not terminated), while Carter et al. [109] used a three-level categorical variable: policy in place (composed of two laws), partial repeal (one law repealed), full repeal (both laws repealed).

Four studies [77,78,83,84] measured policy dismantling as an attribute of policy actions. Klitgaard & Elmelund-Præstekær [77] coded each policy action included in their study as an expansion or retrenchment of existing policies in a specific content area. This measure was expanded in another study [78] to additionally code policy changes as policy or institutional retrenchments. Furthermore, two studies [83,84] used more comprehensive measures of policy dismantling based on the measurement framework of Bauer & Knill.[64] Gravey & Jordan [84] used a coding scheme to

assess each policy change on three dimensions (density, scope, and settings) and two levels (policy as a whole and its instruments), and coded the direction of change as expansion, status quo, dismantling, or unclear. Steinebach & Knill [83] used a similar metric, but they also allowed for the possibility of passive dismantling, which was defined as absence of policy activity in the presence of a changing policy context (e.g., inflation changes, technology innovations).

3.4 Discussion

This scoping review summarized the extent, range, and nature of evidence regarding the determinants, characteristics, and outcomes of dismantling of health-related policies. It also examined the methodological strengths and weaknesses of this body of literature. The existing literature on health policy dismantling shows that though less frequent than policy expansion, health policy dismantling is present, in both active and passive forms, though the latter was only examined in one study. This review also identified several modifiable determinants of health policy dismantling that can be used for initial development of policy dismantling strategies. Furthermore, the review demonstrates that policy dismantling has an impact on people's health and health behaviors, with greatest generalizability to injury prevention policies. The observed impact on health was detrimental (e.g., increased mortality, larger smoking prevalence), which is logical given that most policies evaluated in the literature were policies that sought to protect public health (e.g., motorcycle helmet laws, smoking cessation programs).

The reviewed studies used a variety of methods to examine policy dismantling. All reviewed studies used observational designs, and a large proportion were natural experiments. Among the studies of determinants of health policy dismantling, the infrequent use of designs to assess causality limits the ability of the literature to explain why policy dismantling takes place and

presents an important literature gap. Though the studies of policy dismantling outcomes varied in the robustness of their designs, the large number of robust natural experiments allows for making causal inferences, particularly in the area of injury prevention. The prevalent use of census-based data collection in the health policy dismantling literature is encouraging, as it allows for accurate point estimates and high generalizability.[136] Interestingly, few studies [74,75] included data collection with policymakers or advocates. This may in part reflect the difficulty of carrying out research with policymakers, particularly elected ones, that tends to yield low response rates,[51] as well as overrepresentation of some disciplines (e.g., economics) in policy research. Finally, the absence of use of theoretical frameworks in empirical studies of health policy dismantling presents a research gap, which if filled would allow for better measurement and increased comparability of studies across contexts and policy subject areas.

Few studies reviewed here examined determinants of policy dismantling, showing the pressing need for additional research. Use of well-designed qualitative or mixed methods studies would allow for in-depth examination of this topic and potentially be well-suited to identifying the similarities and differences in the dismantling and adoption/enactment processes. Further, additional research on more proximal outputs of policy dismantling (e.g., influence on performance of public programs, unintended consequences for impact of other policies) with potential for examination how these may feed back into dismantling of future policies.

Complex measures of policy dismantling are only now beginning to emerge in the literature,[83,84] which is reflected in the large number of studies reviewed here that conceptualize policy dismantling as a dichotomous variable. Studies failing to capture the potential complexity of policy dismantling may miss some of the more nuanced relationships between policy dismantling

and its determinants or outcomes.[94,97] Capturing the existing complexity of policy dismantling may also inform selection and testing of dismantling strategies, an area that is absent from the literature. The large amount of information that exists about policymaking that is freely available online or in existing surveillance or administrative databases [51] presents an opportunity for policy dismantling research. It is imperative to supplement and strategically combine this information with original data collection to better characterize the process and its determinants and outcomes.

Surprisingly, most of the reviewed studies did not characterize the evidence base for the policies, though two studies examined perceived public program effectiveness and program efficiencies as determinants of dismantling.[73,74] The lack of examination of the role of policy impact evaluations or degree to which policy content is informed by scientific evidence presents an opportunity for future research. In addition, more research is needed on dismantling of policies that are not supported by evidence and should be discontinued. The drivers and context for terminating these policies may be different than that of policies that enjoy support for enactment among public health researchers and practitioners. It is also not clear whether what works in translation of knowledge into policy enactment is similar or different from how researchers can engage with policymakers in terminating ineffective policies or sustaining effective ones.

Limitations

Given the disciplinary and methodological heterogeneity of the studies reviewed here, particularly among those examining characteristics and determinants of dismantling, it is difficult to compare the studies and generalize from them. In addition, it is possible that rather than focusing on a substantive area (i.e., health-related policies), selecting studies based on a policy instrument or another characteristic may have provided a better basis for comparison, but would

have been less feasible. Moreover, including only studies published in English may exclude potentially valuable scientific literature and bias the results, particularly given the growth of the policy dismantling literature by authors based in non-English speaking parts of Europe.[63] Finally, including only peer-reviewed studies may have excluded potentially informative empirical work present in grey literature.

Conclusions

This scoping review synthesizes empirical literature on processes, predictors, and outcomes of health-related policy dismantling. Dismantling is present, likely impacts population behaviors and health, and some modifiable determinants of dismantling exist. A main literature gap illustrated in this work is related to how policy dismantling happens (the process) and what works to prevent or facilitate it. Filling this gap will allow for development and testing of strategies that can be used by public health practitioners and advocates to ensure that evidence-based policies are not rolled back.

Chapter 4. Effect estimates and predictors of dismantling of state-level food environment legislation

4.1 Overview

Food environments are important determinants of obesity-related dietary behaviors.[20] They are influenced by government actions that: 1. set rules according to which the food industry shapes food choices, 2. incentivize certain dietary behaviors, and 3. influence norms.[85] This chapter will examine state-level policies that focus on the contexts of consumption,[137] i.e., those in which food procurement and consumption occur, with specific focus on availability, quality, and affordability of foods.[85] These areas of obesity policies were also chosen because they are likely to experience dismantling efforts due to opposition from vested interests (e.g., food manufacturers), while allowing for a sufficient sample size (estimated 50-100 policies, based on previous research [41,43,45,89]). Examples of such policies that currently exist at the state level in the United States [29,82] include:

- taxes on sugar-sweetened beverages or unhealthy foods,
- financial incentives to encourage development or upgrading of food outlets to sell healthy foods or beverages (e.g., Healthy Food Financing Initiative),
- menu and/or calorie labeling,
- nutrition standards for foods sold in public places (e.g., public parks) or provided in community institutions (e.g., hospitals),
- portion size restrictions on unhealthy foods or beverages.

This study will also include state-level preemption of local food environment policies, the sole example of a policy expected to affect population health negatively. State-level policies affecting

school and childcare settings will be purposefully excluded because the implementation of provisions of the federal 2010 Healthy Hunger-Free Kids Act within the past decade already largely shapes the contexts of consumption in these settings.[138–140]

The aims of this chapter are to identify (1) the effect estimates and (2) policy- and state-level predictors of dismantling of state-level legislation focused on obesity-related contexts of consumption in the period 2009-2018.

4.2 Methods

Identification of enacted policies

The initial step of the data collection process was the identification of relevant policies in place in the period 2009-2018, i.e., policies in place as of January 1, 2009, or enacted since then. These policies serve as cases to be followed over time. Figure 4.1 details the process of identification and selection of policies. Fifty-one policies from 32 states were ultimately included in this study.

Policies were identified from publicly available policy tracking and surveillance databases. First, the Rudd Center for Food Policy and Obesity's Legislation Policy Database [141] (Rudd Database)—a tracking database of state and federal policies from 2010 to present—was used to identify observations for the study and search strategies for other databases. The 2,398 state-level bills included in the Rudd Database for the period 2010-2018 were included if the bill:

1. Has been enacted at state-level (excluding Puerto Rico).
2. Is not a resolution only.
3. Does not focus on a school or childcare setting.
4. Focuses on the context of consumption (defined below).
5. Is not a duplicate or companion bill.

6. Was enacted (i.e., signed into law, within 2009-2018).
7. Resulted in a policy encoded in state law.

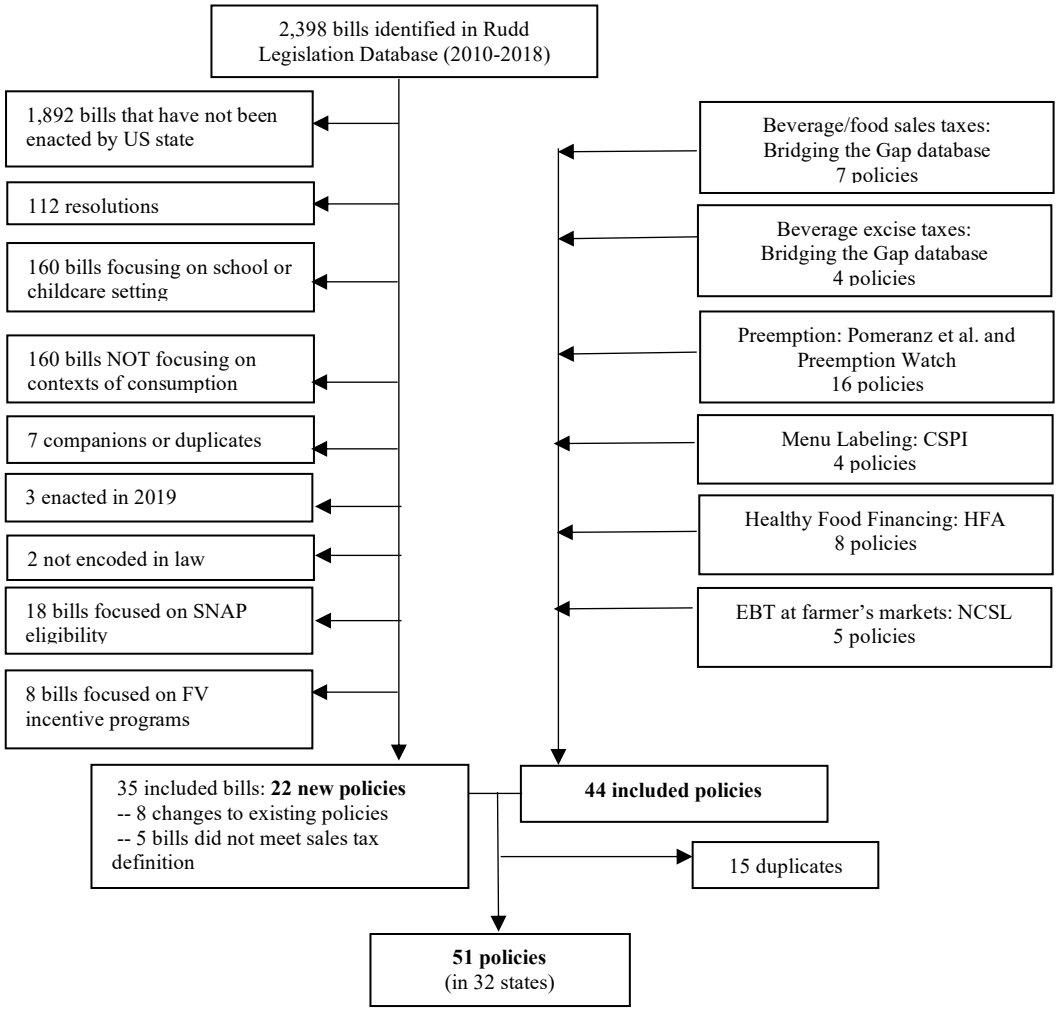

Figure 4.1. Selection of policies

A ten-year study period was used to ensure multiple rounds of political turnover between state parties and correspond to the time period used in the Rudd Database. Two coders independently coded the Rudd Database policies for inclusion, with differences resolved through discussion.

The definitions of policies that target the context of consumption used in this chapter requires clear mechanisms for increasing consumption of healthy foods or decreasing consumption of unhealthy foods (e.g., promotion of local foods or establishment of farmer's markets were excluded). In addition, state food-related policies (e.g., fruit and vegetable incentive programs, SNAP eligibility requirements) that face a large amount of federal policy or program interference were excluded. For example, although states do provide some support to fruit and vegetable programs for SNAP recipients, the federal government began similar pilot programs in 2008, expanding them nationally in 2014, and making them permanent in 2018.[142] However, state menu labeling policies are included in this study, because the federal preemption of these policies was not due to be implemented until the end of the study period (May 7, 2018).[143] Using the above criteria, 36 bills were identified from the Rudd Database. Some of these represented changes to policies previously added to the dataset, and these were not added as observations but served as potential instances of dismantling or expansion.

The Rudd Database identified relevant state policy action in the following topic areas: food and beverage taxes, healthy food financing, menu labeling, nutrition standards, EBT at farmer's markets, and preemption of local policies by the state. As part of the second step of policy identification and selection, each of these topic areas was used to perform searches of the Hein Online Subject Compilations of State Laws database, academic literature (PubMed, Google Scholar), and the internet (Google) with the goal of identifying existing policy surveillance sources. Once a source was identified, a policy definition was developed to ensure that mechanisms for increasing consumption of healthy foods or decreasing consumption of

unhealthy foods were included in the policy. Table 4.1 lists the surveillance database, dates covered, and policy definitions and exclusions.

Table 4.1 Policy surveillance sources by policy topic used for identification and selection of policies

Policy topic	Source	Date	Policy definition	Exclusions
Sales taxes	Bridging the Gap database[144]	Existing as of 2009, policy changes 2009-2014	Tax levels must be different between healthy and unhealthy foods. Net tax difference must be in the highest quartile.	Non-differential taxes of low magnitude (not in top quartile).
Beverage excise taxes	Bridging the Gap database[144]	Existing as of 2009, policy changes 2009-2014	Tax levels must be different between healthy and unhealthy foods.	Non-differential taxes.
Healthy food financing	Healthy Food Access website [145]	Existing as of 2016	Providing financial incentives (e.g., grants, loans, tax exemptions) for development or improvement of healthy food retailers. Had to explicitly tie the incentives to availability of healthy foods.	Bills that were not ultimately enacted or not encoded in state law.
Menu labeling	Center for Science in the Public Interest [146]	Enacted through 2009	Requiring food retailers to provide nutritional information about foods sold.	Bills that were not ultimately enacted.
Preemption of local policies	Pomeranz et al.[82], Preemption Watch [147]	Enacted through 2018	Preemption of local policies related to menu labeling, nutrition standards, or taxation of unhealthy foods.	Preemption of obesity-related litigation.
EBT at farmer's markets	National Conference of State Legislators [148]	Updated last in 2015	Expansion of the EBT system to farmer's markets with the goal of increasing healthy food access.	Bills that were not ultimately enacted or not encoded in state law.

The definition of beverage and food sales taxes posed a particular challenge for the purposes of this study. The majority of states exempt food from taxation, but do not include certain foods in that exemption.[149] In addition, few states include nutrition or processing criteria in their definitions of foods.[150] For a policy to be included in this study, it had to at least minimally differentiate in tax level between healthy and unhealthy foods, e.g., soda (most often defined as sugar- and artificially-sweetened beverages) and candy are taxable, while other foods and water, milk, and juice are not. In addition, none of the states currently tax unhealthy foods at a

minimum of 10 percent, the level identified as necessary for changing behaviors and health outcomes.[151–153] (Another approach is to tax sugar-sweetened beverages at one cent per ounce, which was estimated to roughly correspond to an even greater tax difference nationally at 16.3 percent.[154]) Given the large amount of states with differential food and beverage tax policies, many of them representing a very small net tax on unhealthy foods, policies were included in this study if they were in the top quartile of tax magnitude (in 2009, corresponding to a tax that is six percent higher for unhealthy foods than healthy foods). The Bridging the Gap database included 50 potential polices, of which 28 were differential, and seven were in the top quartile of tax magnitude.

Potential predictors of dismantling and other covariates

Variables that can serve as potential predictors and covariates of policy dismantling were measured at the policy and state levels. Table 4.2 defines these variables and identifies their data source. The variables were identified using existing studies of obesity-related state legislation enactment,[41,43,45] as well as predictors of policy dismantling identified in empirical (results from Chapter 3)[73–77] and theoretical literature [64,99,135] outside of the obesity field.

One coder coded the policy-level variables using the policy text obtained from Nexis Uni and publicly available bill archives on state legislature websites. Microsoft Excel was used to code the policy-level variables for each included policy. State-level variables were downloaded from publicly available sources, merged into a single file, and merged into the final dataset.

Table 4.2 Policy- and state-level variables used as potential predictors and covariates of state obesity policy dismantling

Variable	Description		Data Source
Policy-level variables			
Procedure of enactment			
Primary sponsor gender	Levels: Male, female.		Coded by AM Source: State legislative database and internet search.
Political parties of sponsors	Levels: All Democrat, All Republican, bipartisan, other.		Coded by AM Source: State legislative database and internet search.
Chamber of origin	Levels: Senate, House of Representatives, both, unicameral. Chamber in which bill was introduced.		Coded by AM Source: State legislative database
Year originally enacted	Year the policy was originally enacted into law. Note: When a policy was originally enacted in a year not available through Nexis Uni or state legislative archives, the year was recorded, while an oldest available policy expansion for variable coding.		Coded by AM Source: Nexis Uni or state legislative database
Veto override	Levels: Yes, no. Whether the legislature overrode a governor veto at enactment. Note: Does not capture bills that have been vetoed in a previous session and re-introduced and then passed.		Coded by AM Source: Nexis Uni or state legislative database
Enacted through budget bill	Levels: Yes, no. Whether the policy was enacted via a budget or appropriations bill.		Coded by AM Source: Bill text
Fiscal analysis	Levels: Yes, no. Whether a fiscal note was present or committee fiscal analysis performed.		Coded by AM Source: State legislative database
Policy composition and content			
Policy topic	Taxes	Taxes on sugar-sweetened beverages or unhealthy foods	Coded by AM Source: Bill text
	Access to healthy foods	Financial incentives to encourage development or upgrading of food outlets to sell healthy foods or beverages (e.g., Healthy Food Financing Initiative), other financial incentives for increasing healthy food availability.	
	Menu labeling	Menu or calorie labeling	
	Nutrition standards	Nutrition standards for foods sold in public places or provided in community institutions	
	EBT at farmer's markets	Restrictions on foods and non-alcoholic beverages that can be purchased with SNAP benefits	
	Preemption	Preemption of policies related to context of consumption, the sole example of a policy expected to affect health negatively.	
Policy goals [92]	A concretization of the policy's goal and objectives in terms of specific targets or measures that allow policy resources to result in goal attainment (e.g., enable food purchasers to make informed choices, increase in jobs created in the food retail sector). Open-ended format.		Coded by AM Source: Bill text

Targeting of groups experiencing obesity disparities	Levels: Yes, no. The 'policy targets' variable will be used to determine whether the policy targets include expected results for groups disparately experiencing obesity (e.g., people living in food deserts, low-income populations).		Coded by AM Source: Bill text.
Disadvantaged by policy[155]	Individuals or organizations who are expected to be disadvantaged by the policy in terms of restriction of liberty, redistribution of income, or other restrictions. Open-ended.		Coded by AM Source: Bill text
Policy instrument(s) used [92]	Information	Levels: Yes, no. Instruments that use government communication of information to change behavior of societal actors (e.g., nutrition labeling, information dissemination) or those active in the policy process.	Coded by AM Source: Bill text
	Authority	Levels: Yes, no. Instruments that use the coercive power of government to encourage or prevent (or regulate) certain behavior of societal actors (e.g., portion size restrictions, nutrition standards).	
	Treasury	Levels: Yes, no. Treasury or financial instruments transfer financial resources to and from societal and policy actors to encourage them to perform or prevent them from taking a certain action (e.g., taxes, subsidies/grants).	
	Organization	Levels: Yes, no. Organizational instruments use government institutions and personnel directly or indirectly to produce and distribute societal goods and services (e.g., obesity programs, government services) or involve organization and reorganization of government to alter policy processes.	
Proposes budget	Levels: Yes, no. Proposes a fiscal-year budget.		Coded by AM Source: Bill text
Mandates	Levels: Yes, no. Uses wording such as 'shall,' 'require', or 'mandate' to imply a mandate or enforcement (versus 'recommend,' 'suggest,' 'encourage').		Coded by AM Source: Bill text
Generates revenue	Levels: Yes, no. Generates revenue through healthy food related taxes, fines, or fees.		Coded by AM Source: Bill text
State-level variables			
Political			
Legislature session type	Levels: Annual, bi-annual regular meeting of legislature (for majority of study period).		NCSL
Term limits	Levels: Yes, no, mixed (yes in one chamber and not in the other). Presence of term limits for legislators.		NCSL
Governor's political party	Levels: Democrat, Republican, Independent.		NCSL

Governor party turnover	Number of times the governor party changed during study period.	NCSL
Legislature political party	Levels: Democrat, Republican, split. Political party that controls the two chambers in legislature. If each chamber is controlled by different party, it is coded as split. Time-varying.	NCSL
Proportion of women in legislature	Average percentage of legislators who are women.	NCSL, CAWP
Presence of vested interests		
Pre-emption of litigation	Levels: Yes, no. Presence of state-level legislation that pre-empts litigation based on claims that long-term food consumption is associated with diet-related disease at any point during study period.	Pomeranz et al.[82]
GSP by industry	Proportion of gross state product from the accommodation and food services industry, 2009-2017.	Bureau of Economic Analysis
Industry sales	Annual sales/receipts from the following industries: grocery stores, grocery wholesalers, and restaurants and other eating places, 2012.	US Census Bureau, Economic Census
Sociodemographic and health		
Poverty	Percentage of state population below the poverty line.	US Census
High school non-completion	Percentage of state population that did not complete high school.	US Census
College completion	Percentage of state population that completed a bachelor's degree or higher.	US Census
Adult obesity prevalence	Percentage of state adults with obesity (BMI $\geq$ 30 kg/m^2).	BRFSS
Youth obesity prevalence	Percentage of state youth with obesity (BMI $\geq$ 95th percentile).	NHANES
Economic		
State GDP	State gross domestic product, 2009-2017.	US Bureau of Economic Analysis

BRFSS, CDC Behavioral Risk Factor Surveillance System; EBT, electronic benefits transfer; CAWP, Center for American Women and Politics; NCSL, National Conference of State Legislatures; NHANES, National Health and Nutrition Examination Survey; SNAP, Supplemental Nutrition Assistance Program.

Measurement of dismantling

All policies identified above were followed over time (2009 to 2018) by one coder and assessed for attempted and successful instances of dismantling. A systematic process was used to identify changes to included policies and code them for dismantling and expansion:

1. For each included policy, all relevant state code sections that were created or amended by the policy were retrieved from Nexis Uni. Most often, the enacted bill specified the

created, amended, and repealed code sections. If this was not the case, online state legislature archives were searched for the relevant year's summary of legislation documents, which often detail the code sections affected by the session law. If a policy was enacted before 2009, the 2009 versions of the code sections were reviewed to identify the policy settings in place at the beginning of the study.

2. The original enactment date of the policy was used to determine when the follow-up period would begin. If the date was prior to 2009, only policy changes proposed or enacted after January 1, 2009, were considered.
3. To identify enacted policy dismantling, the most current versions of the code section identified under Step 1 were retrieved from Nexis Uni. Each code section includes a history of enacted changes. Each enacted change to the policy was examined to determine if it represents an expansion or dismantling of the policy. If yes, the date of last action (i.e., enactment date), bill numbers, dismantling type (complete or partial), details about policy changes, and link to the bill were retained.
4. To identify proposed policy changes, all code section numbers were searched in Nexis Uni, limiting the results to bill text, relevant state, and time period (enactment/study begin date to December 31, 2018). Each identified bill was reviewed to determine whether it represented a change to the included policy based on the code numbers. If yes, each policy change was evaluated for whether it represented dismantling or expansion, and if yes, coded for date of last action, bill numbers, dismantling type (complete or partial), details about policy changes, and link to the bill. When several bills in the same year were proposed with nearly identical components, they were treated as one instance of proposed dismantling. If a proposed policy change was ultimately enacted, but the

final bill version no longer included the dismantling components, date of last action is defined as the last action in the legislature (e.g., committee) for which dismantling was included.

Complete dismantling is defined as either the repeal of the code section entirely or repeal of all parts from the code relevant to the policy as defined in this study (i.e., sections related to the context of consumption). The amount of policy changes identified and reviewed varied by policy from none to more than 1,000 potential proposed and enacted changes.

The outcome variables were calculated for each included policy: number of dismantling instances during the study period, whether a policy faced dismantling (yes/no), and time to the earliest instance of dismantling (entry into study to first dismantling instance). These three variables were calculated for the following categories of dismantling used in this study:

1. Any: including enacted or proposed, partial or complete dismantling.
2. Any enacted: including partial or complete, but enacted dismantling only.
3. Enacted and complete: including only complete and enacted dismantling.

Analyses

Sample characteristics

Proportion of policies that faced dismantling, five-year survival rates, and survival probability curves were calculated for the three dismantling categories and by policy topic. Bivariate comparisons of potential predictors between policies that faced attempts at dismantling and those that did not were carried out using independent samples t tests (continuous variables, assumptions met) and chi-square tests (categorical variables).

Risks and predictors of dismantling

Two statistical models were used to identify the predictors of dismantling: multilevel Poisson regression and survival analysis adjusted for clustering within states.

Accounting for the correlated nature of the data within states is important, otherwise there is bias in the standard errors and hazard ratios and censoring may be non-random.[156] The intra-class correlation (ICC) coefficient was calculated to assess the appropriateness of the multi-level model,[156] using a random effects linear regression model with the outcome variable of number of dismantling attempts (for Poisson regression) or time to dismantling attempt or censoring (for survival analysis). ICC greater than 5 percent would necessitate a multi-level model.[157]

Generalized estimating equation models with a Poisson distribution and link function were used to compare potential predictors between policies that faced attempts at dismantling and those that did not, while adjusting for clustering within state using a random intercept. Overdispersion and normality of residuals were examined to ensure robustness of estimates. Cox regression was used to assess association of survival times of policies with potential predictors while accounting for clustering within states,[156] using a random intercept. The Efron method was used to handle tied survival times, and model fit was assessed using Cox-Snell residuals.[156]

Multicollinearity was examined using variance inflation factors [158] prior to analysis to identify groups of variables that were highly correlated (e.g., policy is a tax, policy generates revenue). In addition, variables that had minimal variability across observations (i.e., veto override, fiscal analysis, mandates, proposed budget) were not included in model building. Potential predictors of dismantling were entered into the models sequentially and retained if they improved model fit based on the AIC and -2Log Likelihood statistics, while retaining model quality. Policy

composition and content variables were entered first one-by-one, followed by procedure of enactment variables, and finally, state level variables were entered one-by-one.

All analyses were performed using the R statistical software and the lme4, survival, and coxme packages.

4.3 Results

Dismantling characteristics

Fifty-one policies in 32 states were followed over time up to 10 years. Table 4.3 illustrates the policy changes that were coded in this study by policy topic and whether they represented a dismantling or expansion of a policy. Dismantling consisted most often of complete policy repeals and utilization of sunset clauses. Healthy food access and tax policies also experienced partial dismantling that included making eligibility for programs stricter, reducing the amount of tax, and making the tax less differential by re-classifying taxable entities. Policy expansions captured in this study are also described to give context to dismantling instances and to provide examples of expansions.

The number of policies included in this study ranged from one to seven per state (Table 4.4). Among 51 policies, 75 instances of any dismantling (proposed or enacted, partial or complete), 13 instances of enacted dismantling, and 6 instances of enacted and complete dismantling were observed. One-third of policies (31.4 percent) faced any dismantling, one-fifth (19.6 percent) were successfully partially or completely dismantled (any enacted), and 11.8 percent were successfully completely dismantled. In cases where the successfully dismantled policies were re-instated, it was in all instances through changing the sunset clause.

Table 4.3 Descriptions of policy dismantling and expansion instances by policy topic (N=51).

Policy topic (states with policy)	Dismantling instance (state)[1]	Expansion instance (state)[1,2]
Healthy food access (AL, CA, DC, LA, MA, MD, MI, MS, NJ, NY, OK)	▪ Makes eligibility for financial incentives stricter. (MS) ▪ Sunset clause in original policy. (MS)	▪ Expands definition of eligible food retailers. (NY) ▪ Makes additional information available online about financial incentives. (CA) ▪ Postpones sunset clause for policy. (MS) ▪ Increases size of financial incentive for rural areas. (MI) ▪ Makes policy more prescriptive in terms of amount of healthy food sold, proposed only. (MS) ▪ Directs funds from an SSB tax to fund healthy food incentive program, proposed only. (LA)
Sales tax (CA, IN, MN, NJ, RI, TX, WA)	▪ Decreases general sales tax. (CA, IN, NJ, RI, TX, WA) ▪ Makes tax less differential.[3] (TX, WA) ▪ Complete repeal.[4] (CA, RI, WA) ▪ Sunset clause on general sales tax or portion of tax. (CA)	▪ Makes tax more differential.[3] (CA, MN, NJ, TX, WA) ▪ Increases general sales tax. (CA, IN, MN, TX, WA) ▪ Deposits revenue from tax into an obesity-related fund, proposed only. (NJ) ▪ Postpones sunset clause on general sales tax increase, proposed only. (CA)
SSB excise tax (AR, VA, WA, WV)	▪ Reduces the amount of tax. (AR, MN, WV) ▪ Complete repeal, proposed only. (WA) ▪ Makes tax less differential,[3] proposed only. (WA)	▪ Increases the amount of tax, proposed only. (AR, MN) ▪ Makes tax more differential,[3] proposed only. (AR)
Menu labeling (CA, ME, OR, NJ)	▪ Repeals state law for number of years prior to federal law compliance date. (CA)	▪ Expands penalties for non-compliance after date of compliance with federal law. (CA)
Nutrition standards (CA, DC)	▪ Sunset clause in original policy. (CA)	▪ Repeals sunset clause. (CA) ▪ Strengthens standards. (DC, CA) ▪ Increases number of food items that must comply, proposed only. (CA)
EBT at farmer's markets (CA, FL, IL, IN, NE)	▪ Sunset clause in original policy. (IN) ▪ Complete repeal, proposed only. (NE)	▪ Repeals sunset clause. (IN)
Preemption of local policies[5] (AL, AZ, CA, FL, GA, KS, MI, MS, NC, NJ, OH, OR, TN, UT, WI)	▪ Complete repeal. (FL)[4]	• Expands list of local actions that are preempted. (OH)

EBT, electronic benefit transfer. SSB, sugar-sweetened beverage.

1 Dismantling or expansion can be proposed or enacted, unless identified as proposed only.

2 The list of expansion instances is likely incomplete, as the data collection in this study focused on identifying instances of dismantling.

3 Differential means making a distinction between taxation status between healthy and unhealthy foods.

4 Includes both the repeal of the code section or repeal of all code components relevant to the policy as defined in this study.

5 Only preemption of local policies that affect the context of consumption as defined in this study are included, e.g., preemption of menu labeling, nutrition standards for children's meals.

Table 4.4 Number of dismantling instances by state and dismantling category, 2009-2018, N=51 policies.

State	Number of policies in study	Number of dismantling instances		
		Any[1]	Enacted and complete	Any enacted[2]
AL	2	0	0	0
AR	1	2	0	1
AZ	2	0	0	0
CA	7	8	2	3
DC	3	0	0	0
FL	2	2	0	0
GA	1	0	0	0
IL	1	0	0	0
IN	2	5	1	1
KS	1	0	0	0
LA	1	0	0	0
MA	1	0	0	0
MD	1	0	0	0
ME	1	0	0	0
MI	2	0	0	0
MN	1	4	0	0
MS	2	2	1	2
NC	1	0	0	0
NE	1	1	1	1
NJ	4	6	0	1
NY	1	0	0	0
OH	1	0	0	0
OK	1	0	0	0
OR	2	0	0	0
RI	1	15	0	0
TN	1	0	0	0
TX	1	7	0	1
UT	1	0	0	0
VA	1	0	0	0
WA	2	22	1	3
WI	1	0	0	0
WV	1	1	0	0
Total	**51**	**75**	**6**	**13**
	Mean	**1.47**	**0.12**	**0.25**

1 Enacted or proposed, complete or partial.
2 Complete or partial.

Table 4.5 details the policy-level characteristics for all included policies and those that faced any dismantling. Most frequent policy topics included preemption (31.4 percent), taxes (21.6 percent), and healthy food access (21.6 percent). The majority of policies did not detail any policy goals, one-third focused on groups experiencing disparities (31.4 percent), and a plurality

disadvantaged food retailers (35.3 percent). Policies most often used the instruments of authority (49.0 percent) or treasury (51.0 percent), very few proposed a budget (8.0 percent), nearly all mandated (96.1 percent), and one-fifth generated revenue (21.6 percent). Majority (56.9 percent) were enacted in the past ten years. Sponsors were well distributed across parties and less than one-fifth (18.8 percent) were female.

In bivariate analyses, policies that faced any kind of dismantling were more likely to focus on taxes and less likely to focus on healthy food access and preemption. In line with that, they were more likely to disadvantage retailers, producers, or consumers, and less likely disadvantage local governments. They were also more likely to use a treasury instrument and generate revenue, and less likely to use an authority instrument. More recently enacted policies were less likely to face dismantling. Finally, policies that faced dismantling had a lower median number of sponsors.

Survival Analysis

The survival probability curves indicate that the rate of any dismantling was greater and initially faster than enacted dismantling (Figure 4.2). The any enacted dismantling and complete enacted dismantling survival curves were similar for the first seven years, indicating that enacted dismantling during that period mostly consisted of complete dismantling. After seven years, the rate of any enacted dismantling increased indicating increase in the rate of partial enacted dismantling. Five-year rate of dismantling is 0.28 for any dismantling and 0.11 for enacted dismantling.

Table 4.5 Policy-level characteristics by dismantling status, N=51.

Policy-level characteristics	All policies (N=51) n (%)	Policies with any dismantling (n=16) n (%)	Policies with no dismantling (n=34) n (%)	p-value
Policy topic				
Taxes	11 (21.6)	10 (62.5)	1 (2.9)	.000
Healthy food access	11 (21.6)	1 (6.3)	10 (29.4)	
Menu labeling	4 (7.8)	1 (6.3)	3 (8.8)	
Nutrition standards	3 (5.9)	1 (6.3)	2 (5.9)	
EBT at farmer's markets	6 (11.8)	2 (12.5)	4 (11.8)	
Preemption	16 (31.4)	1 (6.3)	15 (44.1)	
Policy goals				.054
Access to healthy foods	9 (17.6)	1 (6.3)	8 (23.5)	
Enable informed dietary choices	3 (5.9)	1 (6.3)	2 (5.9)	
Support parents in providing healthy meals	1 (2.0)	0 (0)	1 (2.9)	
Not health related	3 (5.9)	3 (18.8)	0 (0)	
Not detailed	35 (68.6)	11 (68.8)	24 (70.6)	
Focus on groups experiencing disparities	16 (31.4)	3 (18.8)	13 (38.2)	.323
Disadvantaged by policy[1]				
Retailers or producers	18 (35.3)	12 (75.0)	6 (17.6)	.000
Local governments	16 (31.4)	1 (6.3)	15 (44.1)	.022
Consumers	11 (21.6)	10 (62.5)	1 (2.9)	.000
Policy instruments[1]				
Information	12 (23.5)	2 (12.5)	10 (29.4)	.296
Authority	25 (49.0)	3 (18.8)	22 (64.7)	.009
Treasury	26 (51.0)	12 (75.0)	14 (41.2)	.044
Organization	12 (23.5)	3 (18.8)	9 (26.5)	.738
Proposes budget	4 (8.0)[2]	0 (0)	4 (12.1)	.294
Mandates	49 (96.1)	16 (100)	33 (97.1)	.575
Generates revenue	11 (21.6)	10 (62.5)*	1 (2.9)	.000
Year originally enacted[3]				.000
Before 2000	8 (15.7)	7 (43.8)	1 (2.9)	
2000-2009	13 (25.5)	5 (31.3)	8 (23.5)	
2010-2018	29 (56.9)	3 (18.8)	26 (76.5)	
Primary sponsor is female	9 (18.8)[4]	1 (6.3)	8 (25.0)	.241
Sponsor political parties				.962
All Democrat	15 (29.4)	5 (31.3)	10 (29.4)	
All Republican	12 (23.5)	3 (18.8)	9 (26.5)	
Bipartisan	20 (39.2)	6 (37.5)	14 (41.2)	
Other[5]	3 (6.0)[2]	1 (6.7)	2 (5.9)	
Number of sponsors, median (IQR)	5 (2-10)[4]	2.5 (2-5.75)	6 (3-11.75)	.000
Existence of fiscal analysis	38 (74.5)[6]	14 (87.5)	24 (82.8)	.424
Enacted through budget bill	2 (3.9)	0 (0)	2 (5.9)	.556

EBT, electronic benefits transfer.

1 Multiple categories per policy possible.

2 One observation missing.

3. When a policy was originally enacted in a year not available through Nexis Uni or state legislature archives, the year was recorded, while an oldest policy expansion available for coding was used to capture policy-level variables.

4 Three observations missing.
5 For example, sponsored by a Democrat and Independent.
6 One observation missing

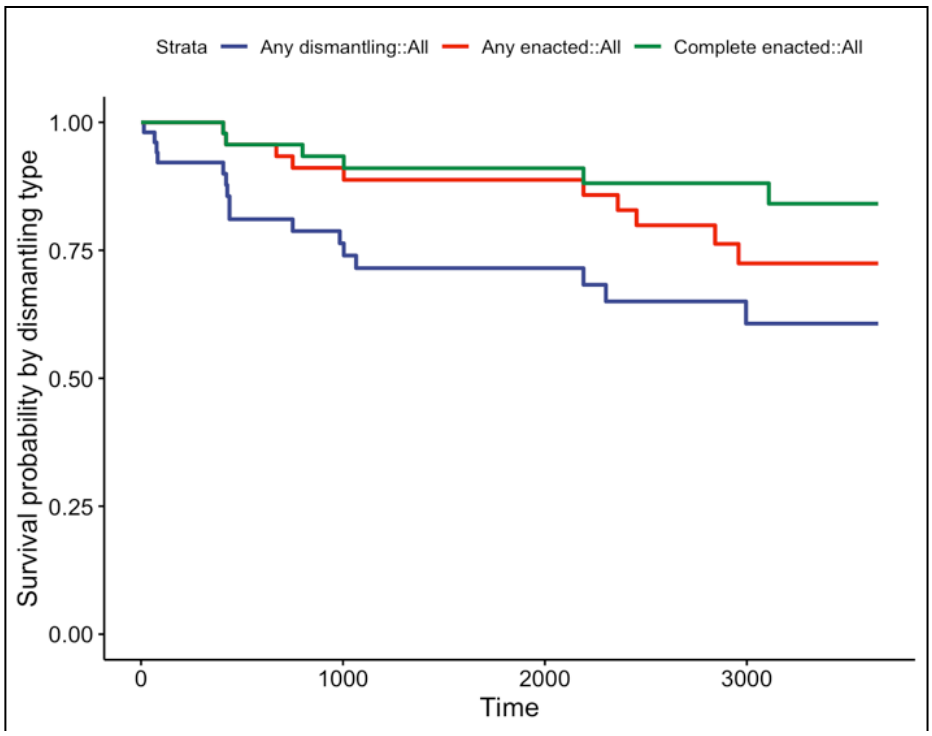

Figure 4.2 Survival probability by dismantling type, time in days, N=51.

The calculated ICC for survival time is 19.5 percent, indicating a large amount of clustering within state and necessitating a multilevel Cox regression model. Predictors of dismantling that were retained based on model fit, AIC statistic, and predictor significance are whether a policy focuses on taxes or preemption, the party of the state governor, and party turnover in the governor office (Table 4.6). The rate of dismantling was 22 times higher for tax policies than other policies, and ten times lower for preemption policies that other policies, holding all other predictors constant. For every additional year of a Republican governor in office over the study period, the rate of dismantling increased by twelve percent. For every additional time there was party turnover in the governor office, the rate of dismantling decreased three times.

Table 4.6 Multilevel Cox Regression model predicting any dismantling using policy- and state-level predictors, 2009-2018, N=48.

Variable	Model [1] (AIC = 87.26)		
	b	**Hazard Ratio**	**SE**
Policy topic: taxes	3.08	21.80***	0.77
Policy topic: preemption	-2.30	0.10*	1.13
Governor Republican (years)[2]	0.11	1.12*	0.05
Governor party turnover (times)[3]	-1.05	0.35*	0.48
Random effect			
Intercept variance	0.103		
Model chi-square (df)	34.57 (5.02), p = .000		

* p < .05, ** p < .01, *** p < .001.
1 This model uses the Cox Proportional Hazard model with fixed effects and a random intercept for state.
2 Variable values reflect the number of years Republican governors (positive values) rather than Democrat governors (negative values) were in office. A zero value indicates an equal amount. A value of ten indicates ten years of a Republican governor in office.
3 The number of times the Governor party changed during the study period.

Poisson regression

The calculated ICC for dismantling counts was 8.4 percent, which though low is not negligible. The Poisson regression model-building process was carried out using a multilevel model. Once predictors of dismantling were identified, a simple Poisson regression model (ignoring clustering within state) was run and compared to the multilevel model with the same predictors. As the AIC decreased slightly from 90.11 to 89.93, a more parsimonious model was retained that ignores clustering. The time in study variable was included in all models during model-building to account for differences in timing of entry of policies into the study period.

Predictors of dismantling incidence that were retained included whether a policy focuses on taxes, number of policy sponsors, Senate as the chamber of origin, and party that controlled the legislature during the study period, all statistically significant (Table 4.7). Tax policies had a 36

times higher incidence of dismantling than other policies. Policies introduced in the Senate had a 2.3 times higher incidence of dismantling than policies introduced in the House, both chambers, or in a unicameral body. For every additional policy sponsor, incidence of dismantling decreased by 5 percent. Republican control of legislature decreased incidence of dismantling by 4 percent for every additional year of control.

Table 4.7. Poisson model predicting number of any dismantling using policy- and state-level predictors, 2009-2018, N = 43.

Variable	Model [1] (AIC = 89.93)		
	b	**SE**	**IRR**
Time in study (days)	0.34	0.51	1.40
Policy topic: taxes	3.58	0.59	35.87***
Number of policy sponsors	-0.05	0.03	0.95*
Chamber of origin: Senate	0.82	0.28	2.27**
Legislature party, Republican[2]	-0.04	0.02	0.96*

* p < .05, ** p < .01, *** p < .001.
1 This model was fit using the ML estimator and the Poisson function.
2 Variable values reflect the number of years the Republican party controlled the legislature (positive values) rather than the Democratic party (negative values). A zero value indicates an equal amount. A value of ten indicates ten years of a legislature controlled by Republicans. For split years, a zero was added.

4.4 Discussion

This study sought to identify the effect estimates and predictors of dismantling of state-level legislation focused on obesity-related contexts of consumption in the period 2009-2018. Over a period of five-years, 28 percent of policies are estimated to face any dismantling attempts and 11 percent to face enacted dismantling. A wide range was observed in this study for how many times a policy faced dismantling (0-15 times). Levying taxes and greater number of years under a Republican governor were positively associated while preemption policies and governor party turnover were negatively associated with risk of dismantling. In predicting dismantling incidence, levying taxes and Senate origin of a policy were associated with greater incidence of

dismantling, while number of policy sponsors and number of years Republicans controlled the legislature were protective.

Existing studies of environmental policies [83,84] conducted in the EU indicate that policy dismantling is not a frequent phenomenon, i.e., less than 10 percent of policy changes to environmental regulations, though this proportion likely varies over time and by political ideology of those in office. Though this study did not calculate dismantling as a proportion of all changes to a policy, expansion was more frequent than dismantling, despite the fact that this study likely underestimates number of expansion instances. The predictors identified in this study are also in line with those identified for obesity policy enactment:[41,43,89] policies that include taxes or generate revenue are less likely to be enacted and more likely to be dismantled, and the number of sponsors is predictive of enactment and protective from dismantling. However, while introduction in the Senate was associated with policy enactment,[89] it was also associated with higher incidence of dismantling.

The number of sponsors may indicate a broad support for a policy among the legislators, or a special request to the committee from the executive branch for a policy to be proposed, also indicating political support from public officials or special interest groups. This relationship between political support and dismantling (or implementation) is supported by empirical studies and theoretical frameworks.[68,100,135] Additionally, like in other literature examining predictors of dismantling (Chapter 3), the role of political ideology was ambiguous in this study. Risk of dismantling was positively associated with Republican control of the governor's office, while incidence of dismantling was negatively associated with Republican control of the legislature. Finally, although some literature indicates that political turnover leads to an increase in policy

activity in the form of both expansion and dismantling,[159] this study found that turnover was negatively associated with dismantling.

Enacted policy dismantling is a relatively rare event and thus difficult to examine in small studies like this one. To be able to identify predictors of dismantling, this study considered both proposed and enacted dismantling attempts. Serious dismantling proposals may serve as proxies for enacted dismantling, or when not enacted, they can help identify strategies for prevention of policies that improve population health. However, unfeasible bills can be introduced for other reasons, e.g., to rally the party base, stake out an ideological position, generate debate on an issue, or simply to appear productive.[160] This kind of action is similar to what Bauer & Knill [68] describe as symbolic dismantling action, intended for high visibility but low impact. Determinants of dismantling may differ between persistent, intentional attempts and insincere, high-visibility legislative proposals and future research should examine these separately.

Limitations

This study is limited by several factors. First, the study takes advantage of an existing obesity policy tracking database and did not validate the data. This may mean that some policies may be missed, particularly policies that are expected to worsen the problem of obesity. Second, as described above, the infrequency of dismantling and the small sample size did not allow for examining predictors of enacted dismantling. Third, latency in the effect of some predictors on dismantling may exist (e.g., small shortfalls in funding may play out over time), which may mean that predictors are not measured early enough in the causal process, potentially creating attenuation of the association between those predictors and dismantling and confounding.[161] Finally, the sample size in this study was small, and given the complex modeling carried out,

important predictors that have small effects may not have reached significance. Similarly, though all variables were examined for collinearity, effects of variables with collinearity below the variance inflation factor thresholds could have been difficult to detect.

Conclusions

To the author's knowledge, this study is the first to examine the dismantling of a subset of obesity-related policies. It serves to inform obesity advocacy efforts in that it identifies the effect estimates of dismantling and provides potential strategies for prevention of dismantling (e.g., building political support). Future research should distinguish between proposed and successful attempts and characterize the actors involved in dismantling and their motivation. Policies effective for obesity control (i.e., taxes) were more likely to face dismantling than harmful policies (i.e., state preemption of local action). This means that the public health advocacy efforts should work to identify ways to protect from dismantling the former and facilitate the dismantling of the latter.

Chapter 5. Framework for assessing obesity-related policy dismantling

5.1 Overview

Policy dismantling is an emerging area of inquiry in public health research and suffers from a general absence of measurement tools. The majority of existing studies of health policy dismantling conceptualize dismantling as a dichotomous variable (e.g., legislation repealed or not), despite theoretical and empirical work indicating that it is a process rather than an event. Process-oriented assessments of policy dismantling are only now beginning to emerge in the literature,[83,84] which conceptualize dismantling as a type of policy change, which can be assessed in degrees of change (e.g., removal of entire policies or instruments versus reductions in the policy instrument scope or density), and these so far have focused on environmental regulations. Capturing the process of policy dismantling beyond the bivariate definition (or three-levels used in this dissertation) is important as it may better elucidate the relationships between policy dismantling and its determinants and outcomes, as well as help study effectiveness of policy dismantling strategies.

Policymaking is process for which there are many sources of administrative data available, often used to populate the public record (e.g., legislation texts, committee hearing transcripts, floor speeches, social media posts). Policy dismantling thus falls somewhere in the middle of the continuum of observability, as it is more objectively observable than, for example, psychological constructs (e.g., depression, which would need to be measured via associated observable behaviors and symptoms), but less observable than physical attributes (e.g. weight, which can be operationally measured).[162] The large amount of data sources, generally not designed for

research, presents an opportunity to study this phenomenon, but little guidance exists in the literature regarding how to do so for state-level policies targeting obesity-related contexts of consumption.

This chapter will develop an initial framework for assessing dismantling of state-level legislation focused on obesity-related contexts of consumption and provide additional context regarding the actors, strategies, and motivations.

5.2 Methods

This chapter will begin by building on existing theoretical frameworks [64,99,135,163,164] and instruments that focus on policy dismantling in non-obesity substantive areas (i.e., environmental regulation)[83,84] to develop a framework for assessing dismantling of food environment policies at the US state level. This will be complemented by a review of selected case studies of policy dismantling carried out at the state level in the United States in non-obesity health areas. Finally, to provide information about additional cases of policy dismantling specific to state food environment policies, news coverage of a subset of policies included in Chapter 4 will be analyzed to identify instances of dismantling, strategies used, actors involved, and their motivations.

Case study synthesis

Case studies of policy dismantling in the United States were sought out to provide additional information about mechanisms and actors relevant to policy dismantling. As no case studies of obesity-related policy dismantling exist to the author's knowledge, state-level studies examining other health-related areas were included.

Potential policy case studies were identified using the literature search from Chapter 3, expanded with variations of the terms for de-implementation, disnovation, disinvestment, and preemption. Identified records were screened for whether they dealt with policy dismantling and health-related topics (largely as part of screening in Chapter 3) and then searched with case study keywords in the title, abstract, and keyword fields. Case study keywords—case or comparative or small-N or 'small N'—aimed to identify studies that referred to themselves as a case study or analysis, case-based approach or analysis, comparative analysis, or small-N study, which are terms commonly used to describe case studies.[165] The goal was to identify in-depth, rich descriptions of policy dismantling, and thus studies with more than 10 cases were not considered a case study. Thirty-seven case studies were originally identified, from which two duplicates were removed. Eleven case studies described policymaking in the United States, of which two did so at the state level, and these were included in the study.

News media analysis

The goal of the news analysis was to synthesize news media coverage of policy dismantling examined in Chapter 4. To that end, sampling using the Nexis Uni search engine was used to identify potential articles via search terms.[166] Search terms for policy types included in Chapter 4 were developed by adapting the Rudd Database [141] search strings as keywords for policies, search terms used in Chapter 3 for dismantling, and where only a small number of states had an enacted policy (i.e., nutrition standards), addition of terms for those states. Potential search terms were systematically pilot-tested in Nexis Uni to narrow down combinations that maximized the number of relevant results while minimizing unrelated results. Table 5.1 lists the search strings that were used. Articles published between January 1, 2009, and December 31, 2018, were

included. Articles in languages other than English and reporting on content outside of the US were excluded. A total of 1,047 articles were identified in the search.

Table 5.1 Search terms used for identification of news articles

Policy type	Search string
SSB and junk food taxes	(((tax OR "business fee") w/15 (soda! OR "soft drink" OR ((sugar! OR sweet!) AND (drink! OR beverage!)) OR ((junk OR unhealthy OR snack OR processed) AND food!))) w/25 (repeal! OR dismantl! OR "rolled-back" OR "rolled back" OR (roll! w/2 back) OR defund! OR deregulat! OR weaken! OR preempt! OR pre-empt!))
Menu labeling	((((menu! OR nutrition! OR calori!) w/2 (label! OR information)) w/15 (“fast food” OR “chain restaurant” OR restaurant! OR dining OR diner! OR establishment OR “drive thru” OR “drive through”)) w/25 (repeal! OR dismantl! OR "rolled-back" OR "rolled back" OR (roll! w/2 back) OR defund! OR deregulat! OR weaken! OR preempt! OR pre-empt!))
Healthy food access	(((financ! OR grant! OR loan! OR incentive!) w/15 ((food w/2 (desert! OR access OR availab! OR healthy)) OR fruit! OR vegetable!)) w/25 (repeal! OR dismantl! OR "rolled-back" OR "rolled back" OR (roll! w/2 back) OR defund! OR deregulat! OR weaken! OR preempt! OR pre-empt!))
Nutrition standards	((((food! OR drink! OR beverage! OR meal! OR vending) AND (standard! OR guideline! OR quality OR requirement!)) w/25 (repeal! OR dismantl! OR "rolled-back" OR "rolled back" OR (roll! w/2 back) OR defund! OR deregulat! OR weaken! OR preempt! OR pre-empt!)) AND (DC OR “District of Columbia” OR “D.C.” OR CA OR California))
EBT at farmer’s markets	((("food assistance" OR snap OR "supplemental nutrition assistance" OR (food w/2 stamp!) OR wic OR “special supplemental nutrition program” OR ebt OR (electronic w/2 benefit! w/2 transfer!)) w/15 (((farme! OR mobile) w/2 market!) OR ((fruit! OR vegetable) w/2 stand!))) w/25 (repeal! OR dismantl! OR "rolled-back" OR "rolled back" OR (roll! w/2 back) OR defund! OR deregulat! OR weaken!))

The goal of the search process was to identify descriptive, in-depth reporting from state and national newspapers, political magazines (e.g., The Atlantic, Nation), and other online sources (e.g., Politico, Slate). Nexis Uni was selected because it is a comprehensive source of the above content and increasingly indexes online content. Additionally, unlike Google News or Media Cloud databases, it is able to accommodate complex search strings and easy filtering by date and location.

Figure 5.1 summarizes the selection process. Identified articles were screened for duplicates using the Nexis Uni grouping algorithm and additional hand screening based on article title and content, resulting in 209 duplicate articles removed. Additionally, articles were included if they:

1. refer to policy types examined in Chapter 4; 2. focus on state-level policymaking; and 3. refer to dismantling efforts at the state level. Blogs were included if they were written by an actor identified by another source as involved in dismantling. One-hundred thirty articles that met the criteria were identified. A large proportion of these mentioned policy dismantling only briefly. Therefore, articles with more information (e.g., details about the dismantling process, actor motivations) were coded initially. Articles that only briefly mentioned dismantling were coded chronologically (most recent first) and continued to be added until saturation was reached by policy and state (i.e., no additional details or actors were listed). This process resulted in 17 articles included in this study.

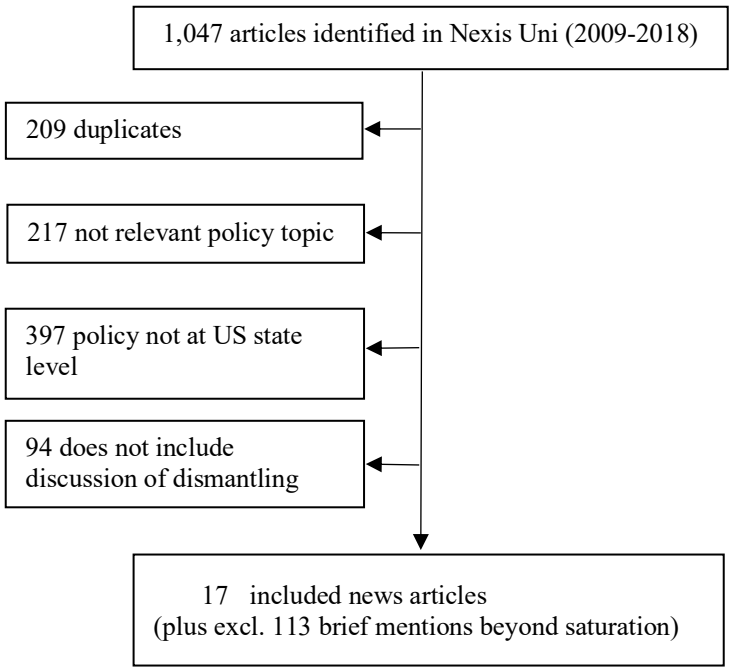

Figure 5.1 Selection of news articles into the study

Data extraction and analysis

Selected news articles were coded by hand in MS Excel using the items listed in Table 5.2. In addition, items 10-13, which were recorded in an open-ended format, were coded for common themes which were then synthesized. Coding was used only on the portions of the text that was related to policy dismantling (e.g., motivations behind policy expansion was not included).

Table 5.2 Items included in the coding of case studies and news articles

Item		Definition
1	Publication type (news only)	Nexis Uni definition (e.g., newspaper, newswire)
2	Press release (news only)	If the article is a released statement from individual or organization. Yes, no.
3	State	State in which the policy is enacted.
4	Policy	Policy discussed in article.
5	Policy as main topic (news only)	Whether the policy is the main topic of the article. Yes, no.
6	Type of dismantling	Complete, partial (as defined in Chapter 4).
7	Dismantling mechanism	Legislative, executive, judicial, ballot.
8	Dismantling successful	Whether the article refers to a successful instance of dismantling.
9	If partial, scope or level dismantling	Whether the proposed dismantling involves changing the instrument level or scope. Level, scope.
10	Actors	People or organizations involved in the dismantling process.
11	Actor motivations	Stated or inferred motivations of actors
13	Strategies used	Strategies used by proponents and opponents of dismantling.
14	Dismantling description	Open ended.

5.3 Results

Figure 5.2 presents the framework for assessing dismantling of state-level obesity-related policies based on review of existing policy dismantling theoretical frameworks [64,99,135,163,164] and instruments.[83,84]

Two early frameworks of policy dismantling introduced dismantling but failed to characterize it as a process rather than event. Kirkpatrick, Lester, & Peterson [135] developed the Process Model for Termination of Public Goods in order to describe how policy termination happens and categorize the barriers and facilitators. They built on and integrated existing theoretical and

empirical work, primarily that of deLeon,[95,167] Frantz,[168] and Bardach.[169] Based on the work of Bardach,[169] the framework presents two types of dismantling. Dismantling can occur as a single, authoritative action, called the 'big bang,' or a protracted ending of policy where resources are slowly reduced, called 'long whimper,' the latter not well defined by the authors. Adam et al.[99] constructed a framework based on existing empirical evidence that organizes determinants of policy organization dismantling along two dimensions and presents a typology. This framework is useful in that it defines policy termination beyond the binary variable and allows for partial termination in the form of organizational reform, but reform is not well-defined. Adam et al.[99] also do not identify actors and strategies involved in dismantling.

The framework presented here is largely adapted from Bauer & Knill,[64] who developed an analytical framework that examines the conditions under which politicians engage in policy dismantling and the strategies they use to do so. In it, they define policy dismantling as a specific direction of policy change, which moves in the negative direction, opposite of policy expansion. They use three levels to examine policy dismantling (Table 2.3 in Chapter 2): policy presence, policy instruments, and settings of policy instruments. Policy instrument settings are further divided into instrument level (calibration of the instrument, e.g., amount of tax on sugar-sweetened beverages) and instrument scope (e.g., number of cases or target groups addressed by policy). Figure 5.2 is further informed by Wang et al.'s [164] terminology, who distinguishes between complete and partial de-implementation, arguing that each entail different dynamics.

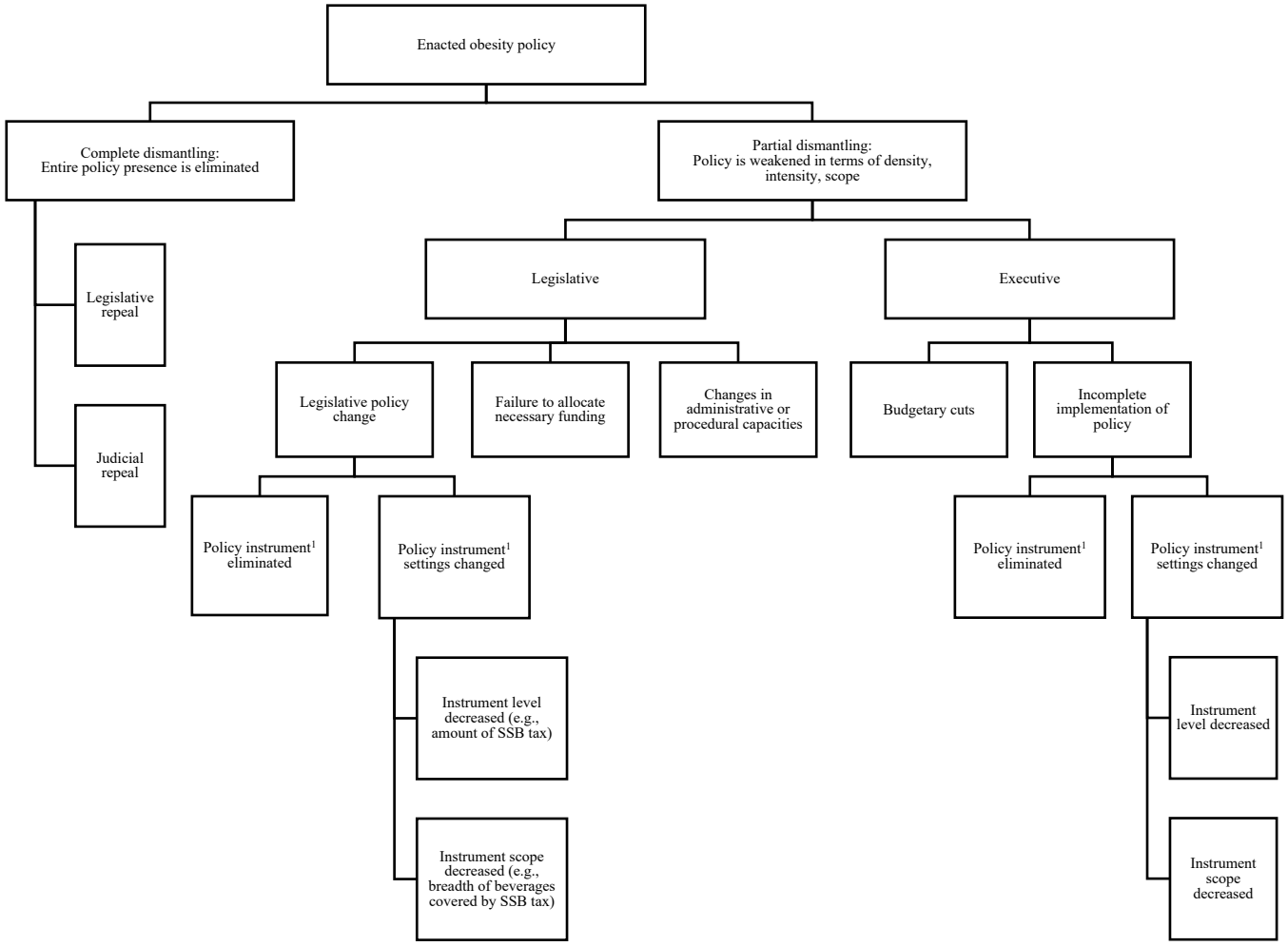

Figure 5.2 Framework for assessing food environment policy dismantling
[1] Instrument, a policy tool choice or the implementation tool for carrying out the intention of policies.[92]

Case studies of policy dismantling

Two case studies of policy dismantling at the state level were identified (Table 5.3). Examining healthcare dismantling, Kilbreth[170] focused on a set of policies expanded in 2003 in Maine that governed access to healthcare in the state; these were enacted in a bi-partisan fashion and with high vote margins. The policies targeted for dismantling included an ACA-like healthcare program, sliding scale subsidies available for premiums for private insurance plans, a new

government agency to administer the program, web-based information about the program, and expansion of the Children's Health Insurance Program (CHIP) to parents of eligible children. Bialous & Glantz [171] describe dismantling attempts of Arizona's tobacco tax and cessation program, enacted via a ballot initiative with tight margins (50.7 percent to 49.3 percent) in 1994.

Table 5.3 Summary of dismantling attempts reported in selected case studies (N=2).

Case study	Policy	Dismantling attempts	Actors and motivations[1]	Strategies	Other
Kilbreth [170]	Maine's 2003 healthcare policies expansion	• Discontinue development of health exchange marketplace • Reduce number of people covered by Medicaid • Loosen cost-containing regulations	• Republican Governor, to obstruct as much as possible (inferred) • Republican legislators • Democrat legislators • Federal government	None	Precipitating events: • Economic recession • New political ideology (governor, legislature) • Passage of ACA in 2010
Bialous & Glantz [171]	Arizona's 1994 tobacco tax and cessation program	• Divert funding away from program • Spending caps for program • Limit program eligibility and eligible contractors • Legal challenges to program activities	• State legislators, avoid wasting taxpayer dollars. • Administrators, retaliation against supporting organizations (inferred) • Tobacco industry	• Supporters' united front • Hiring a professional lobbyist • Relationships with key House and Senate legislators and staff	None

ACA, Affordable Care Act.
1 The motivation is inferred by others.

Descriptions of ***dismantling actions*** in the Maine case study were less precise than in the Arizona case study. The former included using executive action by a Republican governor, with support from Republican legislators, to discontinue development of the health exchange marketplace; reduce the number of people covered by the state Medicaid program, presumably by changing eligibility rules, though the mechanism was not explicitly stated by the author; and 'sweeping changes' by the Republican legislature to loosen cost containing regulations.

The Arizona case study described dismantling actions that happened during the process of implementing the initiative: during allocation of funding for the initiative, legislative proposals were made to divert funding generated by the tobacco tax away from programs specified in the initiative; initially placing caps on the amount that could be spent on tobacco cessation programming through legislative action (later removed); limiting program eligibility to only some target groups through administrative action (later expanded); limiting eligibility of some organizations to apply for tobacco cessation program contracts through administrative action (later expanded); and legal challenges by the tobacco industry against paying sports teams to promote tobacco cessation messages (unsuccessful, but generated media controversy according to author).

The Maine case study focused mostly on the Republican governor as the main ***actor*** in healthcare policy dismantling. His initial motivation for doing so was framed in ideological terms and was related to the enactment of the Affordable Care Act (ACA) and his desire for "maximum obstruction to [its] implementation," according to the author. Republican legislators were discussed as supportive of the governor's actions, with later dissention by some members. The case study did not characterize actions of Democrats beyond their position against dismantling. Finally, the federal government played a role in launching a suit against the Maine government to stop healthcare dismantling, though degree of success was not well characterized.

The Arizona actors were not broken down by partisan lines. The state legislators, who worked to divert and place caps on funding, claimed to do so in the case of the latter as way to avoid wasting taxpayer dollars during program start-up. Administrators who limited target group and contractor eligibility were accused of doing the latter as a retaliation against organizations that

worked to enact the policy. Finally, the tobacco industry was described as pressuring the governor's office and other administrators to make executive dismantling changes to the program.

The Maine case study did not describe any ***defensive strategies*** by opponents of dismantling. The Arizona case study synthesized several strategies that worked well to prevent dismantling during program implementation. These included development and maintenance of a united front of the supporters of the policy during the process of funding allocation; hiring a professional lobbyist during the implementation phase; maintaining strong relationships with key House committee members (e.g., chair of the House Health Committee); and, though this one was not done well by the proponents of the policy according to the author, recruiting allies of the policy in the Senate.

An additional theme not present in the coding tool emerged during the coding of the Maine case study. Several ***precipitating events*** were described as leading to healthcare policy dismantling. These included the economic recession and fiscal crisis of 2010; Republicans gaining control of governor's office and both state houses in 2010 elections, ushering a new political approach (less moderate, less inclined for compromise than in the past); and passage of the ACA in 2010 which necessitated decisions about how to adapt the state healthcare programs to the federal policy and resulted in legislative fights around expansion of Medicaid in 2013.

News coverage of policy dismantling

Table 5.4 summarizes the dismantling attempts identified in the news coverage analysis. Seventeen news articles reported on dismantling of tax policies in four states. Dismantling took the form of two legislative and two ballot initiative repeals. The articles consisted of a mix of

newspaper stories (e.g., Washington Post, Philadelphia Inquirer, Portland Press Herald), Associated Press newswires, press releases, and blogs.

Table 5.4 Summary of dismantling attempts reported in the news media (N=17 articles).

Policy	Number of articles[1]	Dismantling proposals	Actors and strategies	Motivations[2]
AR SSB excise tax	3 articles -1 press release -2 blogs	• General, non-specific repeal, advocacy only • Partial dismantling by reducing tax, successful	• 'Soft drink lobby' supports general and partial repeal • 'Dozens of ultraconservative Republicans' proposed partial dismantling • Restaurants with soda fountains support the partial repeal	For complete repeal: • Program funded by tax does not need the money. • Tax is regressive. For partial dismantling: • Can be used as a stepping stone for later complete repeal (inferred).
CO sales tax	4 articles: all newswires of AP stories	• Unsuccessful legislative repeal proposal of sales tax on soda	• House Republicans support repeal • CO Beverage Association supports repeal	For repeal (House Republicans): • Tax 'hits working families too hard.' • Tax is 'an unfair burden when other unhealthy foods remain tax-free.' For not pursuing repeal: • Republicans got other wins in the legislative negotiations process (inferred).
ME SSB excise tax	3 articles: all newspapers	• Ballot initiative repeal of tax, complete, successful	• Progressive donor, billionaire financier, gave $100,000 against repeal • 'Soft-drink industry' gave $4 million for repeal	• None given
WA sales tax	8 articles: 4 newspapers, 3 press releases, 1 AP newswire	• Ballot initiative, partial repeal of tax, successful	• American Beverage Association, gave $17 million for the repeal • Manufacturers and retailers • WA Republican Party	For repeal: • No legislative hearings when enacting the tax. • To 'help mom-and-pop convenience stores and local grocers facing new taxes.' • Desire to cut taxes and reduce size of government.

AP, Associated Press. SSB, sugar-sweetened beverage.
1 One article covered both Washington and Maine.
2 Inferred means that the author of the article inferred the motivation of an actor without providing evidence.

The media coverage included little about the process of dismantling, with the exception of legislative negotiations in Colorado, where Republicans were able to secure other legislative

wins and did not need to continue to work toward the tax repeal. Actors reported as supporting dismantling include the beverage industry (often the American Beverage Association) and state Republican parties. Actors reported to be against dismantling were the Democratic party and one progressive cause donor.

Motivations for and against dismantling were grouped into several themes:

1. Legislative process: no hearings were allowed when the tax was originally enacted; the partial repeal will serve as a stepping stone for a complete repeal; stopped pursuing dismantling because able to secure other wins in legislative negotiations.
2. Budgetary: healthcare fund to which tax is earmarked is at a surplus.
3. Policy target group related: working families will be hit hard by tax; tax is regressive; tax is an unfair burden given other unhealthy foods are tax-free.
4. Ideological: desire to cut taxes and reduce the size of the government.

5.4 Discussion

This chapter presents a framework for assessing food environment policies at the state-level. Few case studies examined state-level policy dismantling, and news coverage of state-level food environment policy dismantling was infrequent and not in-depth. Nevertheless, this chapter sheds some light on the process of dismantling by characterizing actors involved in dismantling, their motivations, and defensive strategies.

The most often referenced actors involved in dismantling were people in the government (legislators, governors, and other administrators). Political ideology, pressure from lobbyists and donors, and perceived impact on target groups were cited as motivations for government actors

most often. In addition, several sources described the role of industry groups who worked to dismantle state policies through financial support and put pressure on the executive branch. The Arizona case study is particularly relevant to food and beverage tax policies. Although none of the state tax policies included in Chapter 4 earmarked funding to obesity-related programs, lessons from tobacco taxation and cessation programs provide important lessons for preventing dismantling of food and beverage taxes. Food and eating are more complex than cigarettes and smoking, nevertheless, lessons from policy fights against the tobacco industry indicate that a set of organized, professional, and persistent strategies is necessary to ensure that effective policies are not prevented, preempted, or dismantled by the food and beverage industry.[172]

The strategies identified in this chapter for prevention of dismantling of beneficial health policies—coalition building, professional advocacy and communication, developing and maintaining relationships with legislators and their staff—have previously been identified as important for evidence-based policymaking.[30,51] These are also similar to the core skills of public health advocates—build coalitions around policy issues, coordinate messaging and exchange of information, foster relationships with policymakers.[173,174] Future research should identify advocacy skills that are unique to policy dismantling so that these can be included in public health professional training.

The news reporting analyzed in this chapter focused entirely on food and beverage tax repeal and only in four states. No other instances of dismantling identified in Chapter 4 were reported on in the news media. This likely means that contrary to the author's hypothesis that news media coverage can serve as a complementary source of information on policy dismantling for researchers, in addition to what is available in public policy documents, news coverage instead

underreports legislative dismantling. Future research should explore to what extent social media can be used to measure attention to state and local policymaking and identify early signs of policy dismantling.

Conclusions

Rich, in-depth sources of information to inform state-level food environment policy dismantling assessment are rare in scientific literature and news media coverage. This chapter proposes an assessment framework for dismantling of state-level food environment policies. It also identifies actors, motivations, and strategies that are used in the process of dismantling, which serve as a foundation for future research in this area.

Chapter 6. Conclusions and implications

6.1 Dissertation overview

This dissertation fills an important research gap in the study of obesity policymaking by characterizing to what extent the phenomenon of dismantling is happening at the state level for obesity-related policies targeting the context of consumption, identifying determinants, and characterizing actors and processes involved. The five-year rate of dismantling of these policies is close to one-third for any attempts and one-tenth for enacted dismantling. Food and beverage tax policies face a particularly high rate of dismantling. Case studies and news coverage of state-level dismantling identified actors, motivations, and strategies used in the process of dismantling. Review of health-related empirical literature indicates that modifiable determinants of health policy dismantling exist and policy dismantling has an impact on people's health and health behaviors.

This dissertation has made the initial steps toward characterizing obesity-related policy dismantling. Given the emergence of the literature, it may be too early to recommend definitive changes in practices or how these apply in detail to obesity prevention practice or research. Nevertheless, a few research, practice, and policy implications stemming from this work are put forth as follow.

6.2 Research implications

This dissertation has several implications for public health research. First, Chapter 4 identified a particularly high proportion and incidence of dismantling for food and beverage taxes. Given the large amount of activity in this area, determinants of successful and unsuccessful dismantling should be examined and compared, potentially through in-depth qualitative case studies, with the

goal of developing counter-dismantling strategies for policies that should be kept in place. Ultimately, these strategies could be tested for effectiveness using natural experiments or modeling studies for impact on short-term implementation outcomes and population behavior or health outcomes. In addition, though Chapter 5 identified some actors involved in food and beverage tax dismantling (e.g., beverage industry, Republican legislators), future research could examine other data sources (e.g., hearing testimony transcripts, political contributions) and conduct policy stakeholder interviews to identify a full set of actors and their relationships.

Second, this dissertation did not examine local policy action in Chapters 4 and 5, despite the flurry of food and beverage tax and menu labeling activity at the local level and corresponding preemption actions at the state level.[65] Local policymaking is heterogenous and difficult to assess, yet it is an important source of innovation and best practices for the policymaking process,[88] and future research should examine the extent and processes of obesity-related policy dismantling that happens at the local level. Chapter 3 also illustrated, how federal changes that reversed incentives for states to maintain motorcycle helmet laws created a policy laboratory for examining state-level dismantling of these laws. Similar dynamics are currently playing out as school districts decide how to respond to the relaxation of federal school meal standards.[175] These examples illustrate the importance of examining the dynamics of policy implementation and dismantling across governance levels with the goal of maintaining effective policies in place. Given the potentially complex, non-linear mechanisms, computational systems science methods may be necessary to examine these phenomena.

Third, this dissertation largely focused on legislative dismantling actions. A natural next step, one in line with emerging literature on policy implementation,[100,176] is to follow policy changes

past the governor's signature to determine how dismantling looks during state budgeting, rulemaking, and agency implementation. Though few of the policies included in Chapter 4 proposed a budget at enactment, underfunding agencies tasked with their implementation, for example, would be an easy and a potentially low-visibility strategy for dismantling. In addition, certain policy characteristics, e.g., food tax definitions that make it difficult for small businesses to administer them, may make them more susceptible to dismantling during the implementation phase.

Finally, passive dismantling was examined only by one study [130] in Chapter 3 and not addressed in Chapter 4 due to heterogeneity of policy topics included. Passive dismantling is defined as absence of policy activity in the presence of a changing policy context [83] (e.g., not increasing the minimum wage despite inflation). Some policy changes that were coded as expansions in Chapter 4 (e.g., updating taxable food definitions in response to changing food-related health risks, increasing the level of an excise tax) could be considered as maintaining the status quo depending on original policy goals. Future research should identify the appropriate updates to obesity-related policies necessary for maintaining intended effect on health or health behaviors and assess to what extent these are taking place.

6.3 Practice and policy implications

A major impetus for the study of dismantling of public policies is the need for efficient use of public and private resources. When public policies are ineffective or harmful, the failure to dismantle them is inefficient and may be unethical.[59] Thus, efforts should be made to prevent the dismantling of policies that are beneficial. This is particularly important because literature reviewed in Chapter 3 shows that repealing policies that are beneficial has negative impact on

people's health and health risks.[114,116–121,123–125,109–113,115,122] This dissertation has the following practice and policy implications:

First, though Chapter 4 only provides initial evidence regarding the predictors of dismantling of policies targeting the context of food consumption, it is clear that some policies (e.g., taxes or policies enacted with little political support) are more likely to be dismantled than others. This research and the work that will hopefully follow will enable practitioners and advocates to determine which policies are at higher risk of dismantling and at what periods of time. For example, the survival curves in Chapter 4 indicated that dismantling was faster closer to enactment. News coverage in Chapter 5 identified two instances of beverage tax repeal that happened within one year of enactment. However, Chapter 5 results also suggest that media coverage of dismantling attempts is uneven, only focusing on some policies and dismantling actions—e.g., ballot initiatives, large spending by industry—and ignoring others. Strategic action models in the field of preemption [177] instruct public health advocates to closely monitor legislative activity, maintain relationships with legislators and their staff, and create information sharing systems with grassroots advocates. Such activities may be necessary for policies that are important to the public's health and have high risk of dismantling. In addition, development of understandable and novel dissemination formats that are quickly and easily digestible by practitioners (e.g., webinars, infographics) may facilitate timely action.

Second, this dissertation only examined one policy type that is likely to have a negative impact on obesity—preemption of local food environment laws. Survival analysis in Chapter 4 indicated that state preemption policies are difficult to dismantle, despite how harmful they are in that they repeal and discourage local obesity-related action.[82] In addition, though the media coverage

search in Chapter 5 identified many articles that reported on state preemption policies, none of these articles referred to any dismantling efforts (and thus were not included in the sample). This means that once harmful policies are enacted, they are difficult to remove. Public health advocates should prioritize these policies for monitoring and early and forceful action if they are introduced in state legislatures.[177]

Third, several systems for obesity-related policy surveillance exist,[178] and they provide valuable data that fuels obesity prevention research, evaluation, and advocacy. These systems should include standardized metrics that allow for discerning whether policy dismantling is happening. This will allow for detection of patterns of policy dismantling across a family of related policies and development of a response to such patterns by public health practitioners and advocates. Surveillance of successful and proposed attempts at dismantling federal regulations is growing,[179] and these databases could be used as examples for collecting obesity-related dismantling data at the state level.

Finally, as in other areas of public health, the progress in the area of obesity policy dismantling will likely require multidisciplinary efforts.[12,180] Given that dismantling is not limited to the field of obesity, successful strategies for preventing dismantling from other fields (e.g., environmental policies) could allow for faster and outside-the-box responses to dismantling efforts by the food industry. Partnerships that bring together people from diverse disciplines and sectors are necessary for identifying and implementing creative solutions.[214] This review underscores the need for training public health professionals active in obesity policy work in developing and sustaining collaborative partnerships, particularly with other public health areas and policymakers,[214] potentially through national organizations.

6.4 Conclusions

This dissertation was carried out in a period when 85 federal environmental regulations have been or are in the process of being dismantled through executive action,[181] despite the real and urgent danger of climate change,[182] and hard-won national school meals rules are being rolled back,[79,183] despite the persistent obesity rates among the nation's children.[184] Although the time frame for executive action is much shorter than for legislative action, these recent events illustrate that a certain amount of dismantling happens each time a political party whose ideology centers on keeping the government small gains political power. Yet the present period of dismantling carries higher risk given the weakened institutions and high political polarization.[185] It behooves the field of public health to be prepared to respond by identifying strategies for ensuring that evidence-based policies remain in place and harmful or ineffective ones are removed. Policies targeting obesity have a large potential for population impact as they address upstream determinants by influencing economic, physical, and social environments.[20,24] This dissertation provides initial findings about what determines dismantling, actors involved, and strategies that could be used. Future research should build on these findings to generate evidence for how public health practitioners and advocates can tip the dismantling scale in favor of population health.

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