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A diversified idea paradigm?

Mapping the evolution of economic environmental and climate ideas in the WTO Secretariat

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Abstract

The aim of this thesis is to contribute to highlighting how economic environmental and climate ideas are expressed in the Secretariat of the *World Trade Organization* and to compare this with how they are expressed in other international organisations. In the article *The evolution of ideas in global climate policy*, Jonas Meckling and Bentley B. Allan map the evolution of economic environmental and climate ideas in six large international organisations. Basing their analysis on four economic schools of thought, limits-to-growth, neoclassical, Keynesian, and Schumpeterian, they conclude that the neoclassical idea paradigm that dominated in the 90s and early 2000s has given way to a diversified paradigm since the mid-00s, in which Keynesian and Schumpeterian ideas complement the neoclassical. This thesis hypothesises that this diversified paradigm should not be seen in the evolution of ideas expressed by the WTO Secretariat and adopts a "least-likely"-method to create conditions for drawing generalisable conclusions about the evolution of ideas accounted for by Meckling and Allan. The analysis, however, indicates that a similar evolution has taken place in the WTO Secretariat, which seems to confirm that there has been a general shift in the economic environmental and climate ideas expressed by international organisations.

Key words: WTO, climate, growth, ideas, institutions
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1 Introduction

The environment and climate crises are more acute than ever. Unless drastic and comprehensive measures are taken, we are approaching catastrophic consequences (UNEP). In addition to the negative consequences that the crises have for ecosystems, they have an impact on societal systems, such as the economy. There are different views on the relationship between the environmental and climate crises and economic growth, development, and prosperity (Meckling and Allan 2020a). From a political-economic standpoint, this implies that there are different views on what is causing environmental degradation and climate change, and therefore on what options for action that are reasonable and viable.[1] Understanding and studying these different views give a perspective on how environmental and climate problems are addressed, how that may change over time, and why.

In the article *The evolution of ideas in global climate policy* (2020), Jonas Meckling and Bentley B. Allan study the evolution of economic environmental and climate ideas in six large international organisations and the different views on how environmental protection and climate mitigation relate to economic growth. Distinguishing between different types of ideas in the form of goals (also expressed as the relationship between economic growth and environmental protection/climate mitigation), problems, and policies, they conclude that there has been a change in what ideas are promoted. Their research shows that while these ideas were dominated by a paradigm based on neoclassical economics in the 90s and early 2000s, this paradigm has diversified. Since around 2006/2007, Keynesian and Schumpeterian economic ideas have become more prevalent among the ideas presented by the international organisations. For a more thorough review of their research, see section 2.2.

The relationship between trade and the environment/climate is an ambiguous subject both in terms of their possible impacts on each other and in terms of the relationship between environmental/climate action and the multilateral trading system based on WTO rules (Brenton and Chemutai 2021). At a time when the USA has introduced a large package of laws with the aim of combating climate change, the *Inflation Reduction Act* (IRA), which has led to concern being raised about the IRA potentially including trade discriminating provisions, the role of trade and the WTO in a necessary green transition is more relevant than ever. This is extra interesting since the IRA includes subsidies and investments (Boehm and Scalamandrè 2023) that, one must say, to some extent mirror the Keynesian and Schumpeterian schools that Meckling and Allan believe have become increasingly prevalent in international politics.

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[1] I study environmental and climate issues together since it does not impact my use of theory. In practice, environmental problems and climate change can have different causes and solutions.

Taking my point of departure in the sociological and constructivist institutional literature, and in the notion that international organisations can function as independent authorities that can shape the perception of the world and the possibilities for action, this thesis maps the evolution of how the Secretariat of the World Trade Organization (henceforth the WTO Secretariat) views the relationship between economic growth and environmental protection/climate mitigation, what causes the problems of environmental degradation and climate change, and what policies should be pursued. Furthermore, using the WTO Secretariat as a "least-likely"-case, the thesis gives a perspective on the findings of Meckling and Allan.

1.1 Purpose and research questions

The purpose of this thesis is twofold. Firstly, I intend to map the evolution of economic environmental and climate ideas in the WTO Secretariat, starting from the late 90s and ending in 2022. Secondly, I intend to use these results to compare the evolution of ideas in the WTO Secretariat with the evolution of ideas in the organisations studied by Meckling and Allan. By using a "least-likely"-method, the approach provides opportunities to generalise and draw conclusions about whether there has been a widespread shift, or not, in the ideas expressed by international organisations. My research questions are thus:

- How have the economic environmental and climate ideas expressed by the WTO Secretariat evolved from the late 1990s to 2022?
- How does the evolution of economic environmental and climate ideas expressed by the WTO Secretariat compare to the evolution of ideas in the organisations studied in *The evolution of ideas in global climate policy* (Meckling and Allan 2020)?

1.2 Previous research

The research areas covered in this thesis are broad (environment and climate, economic growth, trade), and the research context in which this thesis is positioned is accordingly also broad. I believe, however, that the literature treated below provides a good context for the main intersections in the thesis.

In *The growth paradigm: History, hegemony, and the contested making of economic growthmanship* (2015), Matthias Schmelzer discusses how the concept of "economic growth" became a central priority in the post-war period. Using the example of the *Organization for Economic Co-operation and Development* (OECD), he describes how the prevailing "growth paradigm" consists of "an

ensemble of societal, political, and academic discourses, theories, and statistical standards that jointly assert and justify the view that economic growth as conventionally defined is desirable, imperative, and essentially limitless" (Schmelzer 2015: 264). Critiquing this view, he argues that growth has become a threat, not least environmentally (Schmelzer 2015: 270). This view echoes the limits-to-growth-perspective on the relationship between economic growth and the environment/climate (see section 2.2.1 below), and Schmelzer describes how Herman Daly, a limits-to-growth-connected scholar, introduced the concept of a "growth paradigm" (Schmelzer 2015: 264). While this thesis does not take a stand on the relationship between economic growth and the environment/climate, the relationship in question is nevertheless a focal point. Furthermore, Schmelzer's notion of the existence of a "growth paradigm" mirrors some of the main theoretical assumptions forming the basis for the analysis (see section 2.2).

In *Norms, Institutions and Social Learning: An Explanation for Weak Policy Integration in the WTO's Committee on Trade and Environment* (2010), Melissa Gabler starts in constructivism and in ideas in the form of norms to emphasise their role in policy change. She points out that there is often talk about "win-win" opportunities in the relationship between trade and the environment, but that it is a miscalculation not to discuss when trade and environmental goals conflict with each other, or what the hierarchy between conflicting norms and ideas should look like. Not discussing the issues means that the problems are not addressed and therefore not resolved. In international politics, this is exacerbated by different norms having different status in different institutions. To promote "environmental policy integration" in the WTO, both normative and institutional aspects need to be considered (Gabler 2010: 80-83, 112-113). Gabler sheds light upon the fact that the relationship between trade and environment is a contested issue. Furthermore, she highlights the normative and institutional circumstances in this debate, i.e. how the ideas advanced by and in institutions matter for how issues are addressed. Similar assumptions underlie this thesis (see section 2.1 and 3.1.3).

Zelli et al. argue, in *Institutional Interactions at the Crossroads of Trade and Environment: The Dominance of Liberal Environmentalism?* (2013), that liberal environmentalism is a dominating paradigm in policies related to trade and climate. They describe how this paradigm consists of norms that promote market-based solutions (Zelli et al. 2013: 105-106, 113). As explained in section 2.2, the notion that market-based approaches, as part of a neoclassical paradigm, are dominant in the trade and environment relationship forms the basis for the analytical approach in this thesis.

Lastly, Matthias Heymann reflects, in *The evolution of climate ideas and knowledge* (2010), on how the meaning of "climate" has evolved. Studying a long historical period, he describes how the understanding of the concept is not static, but changing and dependent on e.g. actors and political, technological, and ideological circumstances. How "climate" is framed impacts how it is addressed in science and in a wider societal discourse (Heymann 2010: 581-582, 593). In this thesis, the context-specific circumstances, and changes in how environmental and climate issues are understood, underlie the analysis.

2 Theory

2.1 Institutionalism

The overarching theoretical basis for the approach in this thesis is that international organisations, such as the WTO, matter. This falls back on the institutional literature and the notion that studying institutions (including international organisations) can give perspectives on state behaviour and the goings-on in international politics (for a comprehensive review of institutional theory, see e.g. Lowndes and Roberts *Why Institutions Matter*, 2013). Specifically, my starting point is the ideas, in the form of problems, goals, and policies, expressed by international organisations regarding environment and climate.

Environmental problems are shared across borders and must be solved accordingly. Furthermore, research shows that international institutions have played a role in the management of environmental problems. One, and perhaps the foremost, example is the *Montreal Protocol on Substances that Deplete the Ozone Layer* (Keohane et al. 1993: 3-8; Hickmann 2016: 24).

Furthermore, in the vein of sociological institutionalism, in my approach I assume that institutions fulfil a normative role. Institutions and culture are intrinsically linked in that they guide behaviour based on identity and social context. Thus, behaviour is influenced by a perception of what is appropriate (Hall and Taylor 1996: 946-950). If the institutions in question are intergovernmental organisations (such as the WTO), this presupposes that institutions have some type of autonomy from their members, the states. This enables them to use their expertise and legitimacy to influence international governance and state preferences (Morin et al. 2020: 235-236). In that sense, institutions behave as idea-creating and idea-spreading actors.

International organisations thus have authority in their own right. In this, I build on Barnett and Finnemore (2004). Taking a constructivist approach to understanding international organisations, Barnett and Finnemore explain how these organisations function as bureaucracies (Barnett and Finnemore 204: 2-3). As bureaucracies, they have distinct features and possess authority. This authority implies the ability to "use institutional and discursive resources to induce deference from others" (Barnett and Finnemore 2004: 5, 9). Therefore, international organisations do not only act as expressions of state interests and mediators of information and knowledge to solve problems that states need solved. Instead, they process information, present it, develop their own ideas, and pursue their own goals. Thereby, they influence how the social world is constituted and what opportunities

for action are perceived to exist (Barnett and Finnemore 2004: 1-10). Furthermore, I draw on sociological institutionalism, and Jinnah in particular, in perceiving that this autonomy extends to the secretariats of intergovernmental organisations. Jinnah demonstrates that while sometimes seen as neutral bureaucratic and administrative functions, secretariats can possess high levels of autonomy (Jinnah 2014; Morin et al. 2020: 236).

To conclude, international bureaucracies such as the WTO and its Secretariat matter in international governance not only as tools for states to use, but as authorities in their own right. Through institutional and discursive resources, they influence how the world is perceived. The environmental and climate related ideas expressed by international organisations therefore help define these challenges and what opportunities exist to solve them. Furthermore, international organisations being autonomous in relation to their member states, allows me as a researcher to compare, analyse, and discuss international organisations, and the ideas they express, from the perspective of them being actors rather than instruments of other actors. This opens possibilities to draw conclusions that are based on the ideas expressed specifically by international organisations and that would otherwise not be possible. Although this is the fundamental theoretical background for my thesis, institutionalism as such is not used as a tool in my analysis.

2.2 "The evolution of ideas in global climate policy" and the World Trade Organization

As stated, I take my starting point in the article *The evolution of ideas in global climate policy* by Meckling and Allan to investigate on the one hand the evolution of ideas expressed by the WTO Secretariat specifically, on the other hand how this compares to the evolution in the organisations that Meckling and Allan study. They base their study on a distinction between the ideas of four economic schools of thought: "limits-to-growth", "neoclassical", "Keynesian", and "Schumpeterian". "Ideas", in this context, are made up of three concepts, and in the continuation of this thesis "ideas" is the umbrella term for these three:

- **Goals.** The goals of environmental protection/climate mitigation, also expressed as the relationship between economic growth and environmental protection/climate mitigation. Can be divided into three distinct views: "conflict", "weak complementarity", or "strong complementarity" (see below).
- **Problems.** What causes environmental degradation and/or climate change.
- **Policy.** What type of policy should be introduced and implemented to deal with environmental degradation and/or climate change to address the problems and reach the goals.

According to Meckling and Allan, the ideas expressed by major economic and environmental international organisations have diversified between 1990 and 2017 (their research period). While in the 1990s and early 2000s, the dominating ideas were based on neoclassical economics, this changed in the mid-00s, after which Keynesian and Schumpeterian ideas have become more prevalent. The neoclassical ideas did not disappear, but the overall idea paradigm diversified. The limits-to-growth-perspective, however, has continuously been present but at low levels (Meckling and Allan 2020a: 435-437). See Fig. 1, Appendix 2.

These four schools of thought (limits-to-growth, neoclassical, Keynesian, Schumpeterian) have differing views on the relationship between economic growth and environmental protection/climate mitigation and, consequently, on the problems causing environmental degradation and the policies needed to address them. Meckling and Allan distinguish between three such views: conflict, weak complementarity, and strong complementarity.

According to the **conflict** view, economic growth and environmental protection/climate mitigation do not go hand in hand and cannot be combined in a policy. Instead, there needs to be trade-offs; only either economic growth or environmental protection/climate mitigation can be achieved. From a **weak complementarity** point of view, environmental protection/climate mitigation is necessary to avoid economic growth declining in the future. The weak complementarity view also highlights the opposite relationship, that low income, poverty, or lack of development have a negative impact on the environment. The **strong complementarity** perspective goes a step further and believes that policies that protect the environment and mitigate climate change not only prevent economic growth from declining in the future but can drive economic growth and vice versa (Meckling and Allan 2020a: 434; Meckling and Allan 2020b: 4). The mechanisms and theoretical basis behind each view will be described in more detail when the economic schools of thought are presented below.

Apart from the evolution of ideas based on the four economic schools of thought, Meckling and Allan make some secondary observations. Firstly, distinguishing between the concepts of sustainable development and green growth, they conclude that green growth (and related concepts such as green economy and low-carbon growth) emerged around 2006 and overtook the concept of sustainable development around 2008 in terms of how many times sustainable development or green growth goals appeared in their material. They find that since 2012, green growth-related concepts and sustainable development have been on similar levels. Secondly, subsidies and infrastructure investment-based environmental policy overtook market-based environmental policy around 2008 in terms of how many times these policies are proposed by the international organisations. Since then, the prevalence of one or the other type of policy has varied with subsidies and investments once again having an upswing in 2014. Thirdly, between 1990 and 2006, environmental problems in general were in focus. Since 2006, however, climate change in particular has been the dominating environmental challenge, and climate related ideas more prevalent than ideas on environmental problems in general (Meckling and Allan 2020a: 435-437).

Before discussing the four economic schools of thought in more detail, I want to touch upon the WTO as a basis for how the findings of Meckling and Allan are applied to the WTO in this thesis. The WTO was established in 1995, at the height of the neoclassical paradigm, for a specific purpose, monitoring and liberalising trade, and with a clear set of rules determining how they operate (WTOa). Thus, everything that the WTO Secretariat does, expresses, and publishes needs to be considered in relation to the purpose of liberalising trade in accordance with the rules.

Liberalisation of trade and the operations of the WTO are in fact fundamentally based on (neo)classical and related neoliberal ideas. "The case for open trade" as phrased by the WTO on its webpage, is based on the idea of comparative advantage. This means that countries should specialise in producing goods that they produce comparatively more efficiently than other countries, and then trade other goods with countries that are comparatively more efficient in producing those. The term is primarily associated with classical economist David Ricardo (WTOb; Hiscox 2020: 98).

Based on this, I draw the conclusion that neoclassical ideas should be central to the activities of the WTO, because they are central to the existence of the WTO. Therefore, the same evolution of ideas expressed by the organisations studied by Meckling and Allan, where Keynesian and Schumpeterian ideas are competing with neoclassical ones since the mid-00s, should not be seen in the WTO Secretariat. My hypothesis is thus:

The evolution of environmental and climate ideas, which means that Keynesian and Schumpeterian ideas have become more prevalent, cannot be seen in the case of the WTO Secretariat, which should instead continue to be dominated by neoclassical ideas.

I will detail both how this hypothesis is tested and further methodological considerations in chapter 3 Method.

The characteristics of and the differences between the schools of thought are essential to the analysis of the ideas and the evolution of these ideas. The remainder of this theory section therefore consists of an explanation and comparison of these four schools. I want to stress, however, that the discussion below is by no means all-encompassing. The goal is not to make a thorough account of the development of these theoretical perspectives, nor to explain different strands of each school or the criticism levelled at them. The goal is rather to make an overview description and summary of the main characteristics of the schools, based on writings by scholars associated with the perspectives, to show what theoretical starting points are the basis for the later analysis. That being said, it is of course possible to discuss how detailed such an overview should be and what should be included.

Furthermore, when reading the review below, it is important to keep in mind that the different economic schools of thought are not necessarily incompatible regarding all aspects. For example, in terms of whether economic growth is compatible with environmental protection/climate mitigation, there is a clear ontological difference between the perspectives, and primarily between limits-to-growth and the other schools. However, in terms of, for example, policies to solve environmental/climate problems, market-based solutions (propositioned by the

neoclassical perspective) do not empirically rule out all government investment (Keynesian and Schumpeterian) and vice versa.

I start each account with a short review of the central assumptions of each school of thought and their view on the relationship between economic growth and environmental protection/climate mitigation, based on authors and literature associated with the schools. I will then connect this to what these assumptions imply in terms of the schools' view on the relationship between economic growth and environmental protection/climate mitigation and give examples of both what the problems causing environmental degradation/climate change are, according to the different schools, and what type of policy should be implemented to solve the problems. This later discussion is based on the article by Meckling and Allan. For the full list of problems and policies connected to the schools, see Appendix 1 (Meckling and Allan 2020a: 435; Meckling and Allan 2020b: 4-6).

2.2.1 Limits-to-growth

The limits-to-growth-perspective mirrors the 1972 report of the same name written by Meadows et al. and commissioned by the Club of Rome (Meadows et al. 1972). Other prominent authors who have influenced the perspective are Nicholas Georgescu-Roegen and Herman E. Daly. Georgescu-Roegen argued that the economy is a "subsystem" of, and therefore dependent on, the environment. This means that economic activity is limited by resources and ecosystem balances, and that ignoring these limits will lead to destruction. Consequently, it is impossible for the burning of fossil fuels, a prevailing part of the current economic system, to be sustainable. Georgescu-Roegen's theory implicates that the economic structures need fundamental change but, as Missemer shows, it is not primarily occupied with what this means for growth (Missemer 2017: 494, 496-498, 503).

Daly's basic view is also that the economy is a subsystem of the earth, but he reflects on what this implies for economic growth. He argues that the economy being limited by the natural environment means that growth as we know it cannot continue. Instead, he argues for a steady state economy in contrast to a growth economy and puts it: "Our economy is a subsystem of the earth […]. The subsystem cannot grow beyond the frontiers of the total system and, if it is not to disrupt the functioning of the latter, must at some much earlier point conform to the steady state mode" (Daly 1974: 17). He proceeds to explain that there needs to be trade-offs between the economy and the "nonhuman part of the biosphere" as they depend on the same limited resources. To protect the environment, the "growthmania" of the current economic system and population development must be replaced by a system with low "throughput", i.e. low rates of birth and death, and low rates of production and consumption (Daly 1974: 15-17, 20). Thus, a constantly growing economy grows at the expense of the larger system it is part of, the natural environment, which will eventually lead to the collapse of the latter.

In terms of the view on the relationship between economic growth and environmental protection/climate mitigation, the perspective therefore posits that there is a conflict between the two. Infinite economic growth is not possible in a

finite environmental system. Consequently, there needs to be a global equilibrium, a balance. The problem, according to the limits-to-growth-perspective is, at its core, resource scarcity. There are not enough natural resources to fuel an ever-growing economy with an ever-growing population. To address the problems and achieve the goals, the policies suggested from a limits-to-growth-perspective include controlling the population and curbing consumption. Daly suggests institutional change, designing institutions so that the required and desired balance in the system can be created and maintained (Meckling and Allan 2020a: 435; Daly 1974: 19-20).

2.2.2 Neoclassical

Neoclassical ideas are fundamental for the neoliberal norms and governance structures that have dominated environmental policy. During the 1980s neoclassical economic governance ideas in global politics were on the rise. This coincided with the Brundtland Commission and the concept of sustainable development, and a little later with the fact that international political developments made liberal market principles the de facto dominating economic view globally. The developments led to the consolidation of the view that economic growth and environmental protection are compatible, as well as that environmental challenges can be solved within market-based and liberal economic structures. While neoclassical economics and neoliberalism are not synonyms, much of the basis of the current neoliberal economic order, including the multilateral trade and investment system, can be traced back to classical and neoclassical economics (Bernstein 2001: 71-74; Hunter Wade 2020: 318; Meckling and Allan 2020a: 435).

Neoclassical economics originally falls back on economists such as Adam Smith and David Ricardo. Later scholars who have influenced the neoclassical view on growth include Robert Solow and William Nordhaus. The foundation of neoclassical economics is the emphasis on supply and demand as determining production, prices, and consumption. In terms of growth, the Solow-Swan neoclassical model assumes that it is the result of three necessary components: labour, capital, and technology. Labour and capital are exhaustible resources, while technological advancement is limitless. Capital includes natural capital, found in and dependent on nature. Environmental degradation and pollution could therefore lead to eventual decline, or impairment, of economic growth (Kenton et al. 2023; Banton and Boyle 2020; Meckling and Allan 2020a, p. 435).

However, unlike the limits-to-growth-perspective, the neoclassical perspective posits that the problem is not primarily per se that resources are exhaustible. In fact, neoclassical economics argues that in theory, substitutability between other types of capital (for example technological advancement) and natural capital could lead to the continuation of current welfare levels despite natural capital being depleted, as long as the total amount of capital is maintained between generations (Fitzroy and Papyrakis 2016: 68) Instead, it is the market implications of resource scarcity that could cause decline in economic growth. Nordhaus writes: “The clear evidence is that the future will not be limited by sheer availability of important materials; rather, any drag on economic growth will arise from increases in costs” (Nordhaus

1974: 23). In other words, the scarcity aspect of resources will have consequences for supply and demand, leading to increases in costs and thus implications for economic growth.

Regarding the relationship between growth and environmental protection/climate mitigation, the neoclassical perspective thus views these as weak complementarities. Environmental protection/climate mitigation is desirable for economic growth to be able to continue in the future. Natural capital is, as mentioned, an essential aspect of growth. But the weak complementarity view also emphasises the opposite relationship, namely that environmental quality is connected to income, poverty, and development levels and that these must therefore be addressed. This is comparable to the concept of sustainable development. According to the neoclassical perspective, the problem causing environmental degradation and climate change is fundamentally that negative externalities are not internalised in prices, i.e. the prices on the market do not reflect the negative impact of environmental damage and climate change (Meckling and Allan 2020a: 435; Meckling and Allan 2020b: 4). Solow exemplifies this by writing that without any sort of measures there is reason to believe that the market "…will tend to consume exhaustible resources too fast…" (Solow 1974: 12). To correct this market failure, the neoclassical perspective suggests market-based policies such as Pigouvian taxes and tradeable permits. Other policy suggestions include eliminating subsidies that cause market distortions, clarifying property rights to prevent unsustainable management of resources, and transferring technologies to developing countries to aid in their transition and development (Meckling and Allan 2020a: 435; Meckling and Allan 2020b: 5-6).

2.2.3 Keynesian

As the name reveals, the Keynesian perspective can be traced back to John Maynard Keynes. Focusing on the demand side of the economy, Keynesian economics argues that the government can influence demand through fiscal policy. By, for example, increasing or decreasing public spending, the government can directly have an impact on demand and employment. Thus, investment is seen as the key factor of economic activity (Britannica Academic a).

After experiencing a downturn since the 1970s, Keynesian ideas became increasingly popular after being successful in the wake of the financial crisis of 2007–2008. This coincided with climate change becoming increasingly high on the agenda of both decision-makers and the public, and consequently on the agendas of international organisations. At the same time, as a result of the financial crisis, there was a strong desire to promote economic growth. During this time, and partly because of the above, the concept of green growth, that environmental sustainability and economic growth can go hand in hand, became more popular (Britannica Academic a, Meckling and Allan 2020a: 435-436).

Starting in New Keynesian theory, Alex Bowen and Nicholas Stern investigate the relationship between growth and environmental protection/climate mitigation by examining the role of environmental policies during times of economic

difficulty, including the impact on environmental policy because of the financial crisis (Bowen and Stern 2010: 137, 146). They write:

"A period of under-utilization of resources owing to aggregate demand deficiency is a good time to be:

- investing in enhancing public capital to protect the environment; and
- focusing temporary increases in government spending on goods and services where the social return exceeds the private return (for example, because externalities have not yet been internalized by the use of market instruments)" (Bowen and Stern 2010: 140).

Comparing fiscal policy to monetary policy, the authors posit that monetary policy does not go well with managing environmental risks, while fiscal policy is generally well designed to promote the transition to a low-carbon economy. Furthermore, they state that spending on the transition to a low-carbon economy is likely to increase labour demand and they conclude that investment in capital linked to long-term environmental protection is justified during downturns (Bowen and Stern 2010: 143-144).

In a UNEP (*United Nations Environmental Program*) report from 2009, Edward B. Barbier discusses how to view the economic recovery from an environmental perspective, also expressing the Keynesian strong complementarity perspective. He writes: "…it is necessary to reduce carbon dependency and ecological scarcity not just because of environmental concerns but because this is the correct and only way to revitalize the economy on a more sustained basis" (Barbier 2009: 5). He argues that increased public spending is necessary for economic development, but that this spending needs to be "green" for it not to be a temporary fix that will have negative economic and environmental consequences in the future. While proposing and advocating the positive effects of measures reflecting several economic schools, he emphasises the importance of large-scale investments to achieve the green transition, create jobs, and general economic development and growth. In the Keynesian spirit, he also exemplifies how fiscal policy can contribute to changing demands and how changing demands in certain sectors can reduce greenhouse gas emissions (Barbier 2009: 24-25, 34, 42, 143)

As is the case with the Schumpeterian perspective (see below), the Keynesian school thus views economic growth and environmental protection/climate mitigation as strong complementarities, meaning that economic growth and environmental protection/climate mitigation can drive one another. There are economic benefits from transitioning to a more environmentally-friendly economy and vice versa. This is comparable to the concept of green growth. According to the Keynesian perspective, the problem is that there is not enough demand for environmental goods and services. Higher demand for environmental goods and services will not only have positive environmental and climate effects, but it will also have positive effects on economic growth. Policies proposed from a Keynesian point of view are based on government spending and investing in areas that will lead to an increase in demand for environmental goods and services. Examples include subsidies for and deployment of technology with fewer negative externalities or technologies that will neutralise the negative externalities (such as carbon capture), investment in climate infrastructure, and government procurement

policies that support the green transition. Central to this is also the notion that market-based policies are not enough. According to the Keynesian perspective it is thus necessary for the government to intervene to steer developments in the right direction (Meckling and Allan 2020a: 435; Meckling and Allan 2020b: 4-6).

2.2.4 Schumpeterian

As with the Keynesian perspective, the Schumpeterian school has been named after an economist, Joseph Schumpeter. While Schumpeter's economic work covers a wide range of areas (Britannica Academic b), it is specifically his work on innovation that is the theoretical foundation of the Schumpeterian perspective deployed in this thesis.

Schumpeter's emphasis is on the role of business, and not least on that of the entrepreneur. An entrepreneur, according to Schumpeter, is someone who carries out innovations with the goal of generating a profit. He argues that when entrepreneurs compete in successful and quality improving innovation, economic progress and growth follow endogenously through the process of "creative destruction". Economic change is therefore driven by the replacement of the old by the new and improved (Britannica Academic c; Sengupta 2014: 63-66; Mathews 2020: 341). Aghion et al. summarise Schumpeter's growth model in three points: "(a) Long-run growth results from innovations; (b) innovations result from entrepreneurial investments that are themselves motivated by the prospects of monopoly rents; and (c) new innovations replace old technologies. In other words, growth involves creative destruction" (Aghion et al 2015: 558).

Drawing from this, the Schumpeterian view on environmental protection/climate mitigation is based on technological innovation. Reflecting this starting point, Acemoglu et al. map the relationship between the environment/climate and technological change and argue that environmental goals and economic growth are compatible. Distinguishing between "clean" and "dirty" technologies, they posit that in cases where clean and dirty technologies are substitutable, immediate intervention is necessary to promote the clean alternatives. Considering the advantages of dirty technologies in terms of market size and production, a failure to intervene risks leading to environmental and climate disaster. Intervention measures should include both carbon taxes and research subsidies, which improve the conditions for the development of clean technologies. The emphasis of such a policy, however, should be on research and innovation rather than on taxes. When these policies have been in place for a while, and clean technology is more established, research is automatically directed to this, and government intervention is no longer necessary (Acemoglu et al. 2012: 132-133).

Consequently, based on Schumpeterian economics, the creative destruction of the innovation process, as in new and better technologies replacing old ones, results in economic growth.

The Schumpeterian perspective, just like the Keynesian, thus views the relationship between economic growth and environmental protection/climate mitigation as strong complementarities. In the spirit of green growth, economic

growth and environmental protection/climate mitigation are not only compatible but can be mutually reinforcing. The problem, from a Schumpeterian point of view, is that there are "lock-ins" of technologies that cause environmental degradation and pollution. These types of technologies dominate the market and are established to the extent that they compete successfully with more environmentally-friendly alternatives. As regards policies, the Schumpeterian perspective suggests investing in research and development as this will promote environmentally-friendly innovation and supply that generates positive economic consequences. Like the Keynesian perspective, the Schumpeterian school also supports deploying clean technologies and agrees with the opinion that market-based policies are not enough (Meckling and Allan 2020a: 435-436; Meckling and Allan 2020b: 4-6).

3 Method

This thesis is a case study of the evolution of economic environmental and climate ideas expressed by the WTO Secretariat and is thus an example of what the evolution of such ideas looks like in the secretariat of a large international organisation. As mentioned, the purpose is twofold. My first aim is to map the evolution of ideas in the WTO Secretariat. My second purpose is to compare the evolution of economic environmental and climate ideas in the WTO Secretariat with the evolution of ideas in the organisations studied by Meckling and Allan. Thus, the study is designed to both test theory and use it. A theory testing study is generally characterised by theory coming first and empirical evidence second. In practice, however, the boundaries are rarely that absolute (Teorell and Svensson 2007: 52). By mapping the evolution of environmental and climate ideas in the WTO Secretariat, I therefore hope to be able to expand the understanding of both the conclusions drawn by Meckling and Allan, and of the ideas presented by the WTO Secretariat specifically.

3.1 The “least-likely”-method and choice of case

Drawing general conclusions based on the study of one case which, moreover, is not randomly selected, is problematic. However, there are methods that make the conditions for drawing more general conclusions as favourable as possible. This study deploys a kind of “least-likely”-method, a hypothetico-deductive approach. In the following section, I explain the mechanisms of the “least-likely”-method and the weaknesses of the approach, before I explain my choice of case in the two sections that follow.

3.1.1 The “least-likely”-method

The starting point of the “least-likely”-method is that the conditions for the theory to be able to explain the case are unfavourable. The theory should not, intuitively, match the case. If, however, it turns out that the theory agrees with the case, there is reason to believe that the theory has good explanatory power also in cases where the conditions are more favourable, even if this is not guaranteed. However, the “least-likely”-method has weaknesses that are important to keep in mind. Firstly, it is possible to get the expected results, i.e. that the analysis shows that the theory is not able to explain the case. Although the theory need not be universally rejected

because of that, it is not possible to generalise based on the chosen case. Secondly, it can be difficult to fully determine what constitutes "favourable" and "unfavourable" conditions. Thirdly, unlike statistical methods, it is not possible to calculate the mathematical probability that the results are incorrect (Teorell and Svensson 2007: 154-156).

3.1.2 Choice of case

The conclusion by Meckling and Allan, as stated in chapter 2 Theory, is that there has been a shift in the economic environmental and climate ideas expressed by major international organisations. While all four of the economic schools of thought are prevalent among the ideas expressed by the international organisations between 1990 and 2017 (see Fig. 1 in Appendix 2), neoclassical ideas, and the weak complementarity view on the relationship between economic growth and environmental protection/climate mitigation, were dominant in the 90s and early 2000s. Since then, however, the paradigm has diversified. Keynesian and Schumpeterian ideas, and the strong complementarity view, have become more prevalent. While it is not possible to say that a paradigm shift has taken place, since neoclassical ideas are still represented, Meckling and Allan draw the conclusion that this development "suggests a greater openness of IOs to pragmatic policy mixes and experimentation beyond the neoclassical policy toolbox" (Meckling and Allan 2020a: 434-437).

In section 2.2, I describe how the WTO is founded on ideas that underpin the neoclassical school, and since the WTO Secretariat works to promote operations based on these ideas, it stands to reason that these ideas should be dominant among those expressed by the Secretariat. In other words, the same diversified paradigm that is found in Meckling's and Allan's organisations should not be ascertained in the WTO Secretariat, or at least not to the same extent. This is the basis of my hypothesis. Thus, if the analysis shows that the hypothesis is correct, it may, based on the "least-likely"-method, be necessary to nuance in what context the diversifying of the paradigm has taken place, since it is most likely not a general phenomenon. If, however, a similar evolution has taken place in the WTO Secretariat, there is reason to believe that this diversified paradigm is a sign of a broader change in the environmental and climate ideas expressed by international organisations, that has found its way into organisations where it ideologically should not be as likely to have done so.

I also want to clarify that I do not state that trade is incompatible with the other economic schools, at least not the Keynesian and Schumpeterian schools. I briefly touched upon the compatibility between schools in section 2.2. However, some kind of conceptual boundary must be drawn in scientific studies and is already done by Meckling and Allan through their division of the schools. Since there are core differences between the schools and since the ideas on which the WTO is based can be traced primarily to the ideas that underpin the neoclassical tradition, I believe that this distinction is valid for research purposes.

I also want to touch briefly upon the relationship between the WTO and the organisations that Meckling and Allan study. They examine six organisations: the *G7/G8*, the *Organisation for Economic Cooperation and Development* (OECD), the *United Nations Environment Programme* (UNEP), the *United Nations Development Programme* (UNDP), the *World Bank* and the *United Nations Framework Convention on Climate Change* (UNFCCC). These organisations were chosen based on the following criteria:

"i. they are all large IOs that regularly and continuously address climate policy issues;

ii. they all continuously exist for the period 1990-2017;

iii. their policy advice has global reach and reflects the views of the largest states, especially the core American and European states of the Western alliance".

Furthermore, the authors believe that these organisations "represent the most important actors in the field of global climate policy" (Meckling and Allan 2020a; Meckling and Allan 2020c: 2).

There are both similarities and differences between these organisations and the WTO. Regarding similarities, the WTO is also a large international organisation that has global reach and can be said to reflect the views of the largest states. As to differences, it is impossible to enumerate them all, not least because the organisations investigated by Meckling and Allan also have differences among themselves. I here mention the ones that I believe are relevant to this thesis, and my reflections regarding this.

Firstly, the WTO is neither an environmental and/or climate organisation, nor an organisation that addresses general economic issues. The WTO is centered around one issue, trade, and while the Secretariat does address environmental and climate issues, and of course economic issues, this is done in relation to trade. While this serves the use of the "least-likely"-approach (see above), it is worth remembering that the WTO is more specialised, or at least specialised in a different way, than the others. Secondly, the WTO was only established as an international organisation in 1995 (see p. 7) and has therefore not existed continuously during the entire period 1990-2017. While this means that I cannot study exactly the same time period as Meckling and Allan, I am able to study a long enough period, including the period dominated by the neoclassical paradigm and the period when the paradigm diversified. Consequently, I should be able to map the evolution and discern a potential change in what ideas are expressed. I return to a deeper discussion of the material in section 3.2.

It is always possible to discuss if the chosen case is appropriate to test the theory. An alternative could have been to choose an international organisation that differs as much as possible from the criteria set out above, in order to capture the evolution in an organisation that has as few similarities as possible with those investigated by Meckling and Allan. However, since the focus is specifically on the evolution of economic environmental and climate ideas, I think it is reasonable that the selection of the case has been made based on the type of ideas likely to be expressed by the organisation. In addition, I think it is interesting to study the WTO Secretariat precisely because the WTO has similarities with the organisations studied by

Meckling and Allan, but nevertheless, according to my hypothesis, should differ in what ideas are presented.

3.1.3 Relationship between trade and the environment/climate

There is another reason for my belief that it is interesting to study the evolution of economic environmental and climate ideas in the WTO Secretariat. This is reflected in the first purpose of the thesis, to map the evolution of ideas in the WTO Secretariat specifically (see section 1.1).

As mentioned, the WTO is not an environmental and/or climate organisation. Nevertheless, trade is a contested issue from this point of view, and there are divided opinions about the relationship between trade and the environment/climate. On the one hand, the prevailing world trade contributes to environmental and climate problems, on the other, world trade promotes cooperation and enables the exchange of innovation and environmentally-friendly technologies (Kommerskollegium 2019). The two positions are not necessarily mutually exclusive, but they represent two views on whether world trade in its current format has a place in the green transition. Recently, this debate has taken on another dimension, as the USA has introduced measures, aimed at tackling the climate crisis, that have been questioned for being protectionist, and possibly in violation of WTO rules.

In August of 2022, the USA introduced the *Inflation Reduction Act* (IRA), a huge legislative package which includes US$369 billion in government investments and subsidies into energy security and combating climate change. While this is a major step in terms of climate action, the IRA contains provisions that has made the EU, in particular, react strongly as it considers them to be in possible breach of trade rules, not least the stipulation that production in one way or another must be located in the USA in order to receive the government support set out in the IRA. The large investments and subsidies for dealing with the climate crises included in the IRA (Boehm and Scalamandrè 2023), reflect the Keynesian and Schumpeterian economic schools. In light of the facts that the relationship between trade and the environment/climate is a hotly debated issue, that this has become especially relevant recently with the IRA, and that the IRA ideologically reflects ideas that Meckling and Allan state should be more prevalent, I hope mapping the evolution of ideas in the WTO Secretariat can provide an interesting perspective on the WTO as an organisation in relation to the environment/climate issue.

3.2 Material

As to material, I take my starting point in the WTO annual reports. This is based on Meckling and Allan also beginning with the annual reports and using other publications only if the annual report is not accessible. Meckling and Allan analyse reports from 1990 to 2017, equal to 28 reports (Meckling and Allan 2020c: 2-3).

The WTO has online accessible annual reports for every year from 1998 to 2022, equal to 25 reports (WTOc). I do not believe this difference in three reports is large enough to make a comparison invalid. Since annual reports contain a lot of information that does not directly relate to environment and climate, I supplement these with ten special publications on environment and climate from the WTO Secretariat. These were published in 1999, 2004, 2009, 2010, 2011, 2018, 2020, and 2022 respectively, and two were published in 2015 (WTOd). Since these publications span an extensive period of time, including both the time when neoclassical ideas dominated (the 90s and the beginning of the 21st century), and when the paradigm, according to Meckling and Allan, diversified, I think that these can provide good insights into the evolution of ideas in terms of time.

Four of these publications are written by the WTO Secretariat in collaboration with other organisations, those from 1999, 2009, and 2018 with UNEP (United Nations Environment Programme) and one of those in 2015 with the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) Secretariat (WTO 1999a; WTO 2009a; WTO 2018a; WTO 2015a; WTO 2015b). For a complete list of the publications, including title and the main authors, see Appendix 3. Although such a collaboration means that the views expressed are not exclusively those of the WTO Secretariat (in fact, UNEP is one of the organisations studied by Meckling and Allan), the contribution of the WTO Secretariat should mean that the ideas expressed in the publication reflects the views of the Secretariat. In the 1999 publication, it is explicitly stated that the publication is a representation of the individual authors. Nevertheless, the authors include people who worked at the WTO Secretariat, and the publication is part of a series of WTO publications (WTO 1999a; WTOe), which makes me believe that the opinions expressed can be deemed as representative of the WTO Secretariat[2].

3.3 Approach

3.3.1 Epistemology

Before discussing the analytical strategy, I would like to touch upon epistemology, where I have a critical realist starting point. Marsh et al. describe critical realism as having the same ontological basis as positivism but sharing the interpretivist epistemological stance. There is a world “out there” independently of me as an observer, but there are also structures and socially constructed phenomena that are not directly observable but that impact outcomes. To gain knowledge of these

[2] I also planned to study a publication from 2000. After trying different avenues, I found it impossible to access it within a reasonable timeframe. This is a loss since it had provided the possibility to study another publication that was supposedly dominated by the neoclassical paradigm.

structures and phenomena, some sort of interpretation is thus necessary, and I as an observer can therefore never be completely objective towards what I observe in my research (Marsh et al. 2018: 182, 193-194). As is evident from the question and the approach, I assume that there has either been or not been a change in the ideas presented by the WTO Secretariat, regardless of our perception of it. Furthermore, I believe that there are ideas "out there" and that these can have an impact on behaviour. In that sense, the ontological basis is foundationalist (Marsh et al. 2018: 179, 182). Nevertheless, these ideas are not directly observable, despite their influencing character. Furthermore, while the use of the "least-likely"-method testifies that I have a scientifically based approach to the study, in that I test an hypothesis and assume that I can get results that might be generalisable, the use of partly the "least-likely"-method, partly content analysis (see below section 3.3.2), demonstrates that I see value in qualitative research as opposed to purely positivist methodologies. In addition, the conclusions of the content analysis are the result of my interpretation based on my understanding of the theoretical literature.

In summary, there are ideas "out there" that impact behaviour, and there has either been or has not been a change in these ideas expressed by the WTO Secretariat. These ideas, and therefore a potential change in ideas, are not directly observable, so to study them it is necessary to use theoretically based interpretation.

Alexander Wendt's discussion in *Social Theory of International Politics* offers further interesting perspectives in terms of epistemology. Wendt aligns himself epistemologically with positivists and ontologically with post-positivists, which in a sense is the opposite of critical realism. However, Wendt makes two points that I agree with: firstly, that constructivism is compatible with a scientific approach, and secondly, that we are dependent on theory, rather than on our senses, to understand the unobservable. Previously I elaborated on the second point. Concerning the first point, as I elaborated on in section 2.1, I draw on constructivist and sociological institutionalist scholars. Furthermore, my focus on ideas is aligned with the constructivist position that there is discursive power (Wendt 1999: 39-41, 60, 90-91; Hopf 1998: 177). Thus, while my approach requires interpretation, I believe that the foundationalist ontology, but more so the anchoring in theory, enables generalisable conclusions.

3.3.2 Operationalisation and content analysis

Based on their analysis, Meckling and Allan create a coding scheme with 42 categories that capture the ways in which the environment and climate are mentioned in their material. They then establish that 26 out of these 42 categories are associated with the four economic schools of thought[3]. These categories express all three types of ideas: the schools' view on the relationship between economic

[3] In their texts, Meckling and Allan state a different number of categories with connections to the respective schools in different places, for reasons not explained. After reading through the categories and connecting them to my understanding of the schools of thought, I have chosen to use 26 categories, which is also the number in the coding scheme.

growth and environmental protection/climate mitigation, the problems according to the schools, and the policies they suggest. Based on these categories, Meckling and Allan count how many times a category is represented in the material and then add them up. This count represents how many ideas associated with a school of thought that appear in the material. This number then constitutes the count for a certain school in a certain document. Based on this count, they can map how the occurrence of ideas associated with different schools has evolved over the years. As mentioned in section 2.2, they also make some secondary observations by counting how many times goals connected to sustainable development or green growth appear, how many times the material advocates market-based policy vs. subsidies and investment, and how many times the main focus of a passage is climate change in particular or environmental problems in general (Meckling and Allan 2020a: 435-437; Meckling and Allan 2020b: 4-6; Meckling and Allan 2020c: 3).

Since my purpose is to study the same type of ideas, to map what the evolution looks like in the WTO Secretariat and to compare it to what the evolution looks like in the organisations of Meckling and Allan, I believe it is valuable if my approach is as similar to theirs as possible. Therefore, I also base my analysis on the categories in the coding scheme formulated by Meckling and Allan. Thus "category" will subsequently refer to the categories in their coding scheme. For the coding scheme, including the operationalisation categories, see Appendix 1. However, since only 26 of the 42 categories are valuable for the study of the number of occurrences of ideas representing the four schools of economic thought, these 26 categories are the ones that I use in the analysis. To analyse the material, I use a form of content analysis with both a qualitative and a quantitative dimension. Largely, I follow the analytical strategy laid out by Burnham et al.:

"1. Select a topic and develop research hypotheses

2. Choose the appropriate communications sources […]

3. Decide on the basis of sampling the material

4. Define the categories for analysis

5. Develop the procedures for coding the material

6. Choose the quantitative measure for analysing the data" (Burnham et al. 2008: 260).

Thus, I read the publications based on the topic and the hypothesis, identify if there are expressions that represent the operationalisation categories and therefore represent an idea of the four schools. If this is so, that category gets one count. After that, my approach is similar to that of Meckling and Allan. I compile how many times a certain category is represented in a publication and add together the counts for all of the categories of each school. This number represents how many times a certain economic school figures in that publication. For example, school of thought A has two operationalisation categories, X and Y. In publication 1, category X is represented 10 times and category Y 12 times. The total count for school of thought A in publication 1 is therefore 10+12 = 22. If school of thought B has a lower count than school of thought A in publication 1, school of thought A is more prevalent. The bigger the difference of the counts between the schools, the bigger the difference in prevalence.

By going through the same process with all of the publications, I can map how the prevalence of the schools has evolved over the years and compare the evolution of the different schools with each other.

This content analysis approach allows me, as Meckling and Allan emphasise regarding their research, to "capture complex changes in the economic ideas that inform policy, rather than only changes in the quantitative counts of certain keywords" (Meckling and Allan 2020c: 2). I have compiled the results of the analysis in an Excel sheet that is available upon request.

Since the method implies interpreting the meaning behind written language, it could be called an analysis of discourse. Considering my approach at large, however, I do not think it is appropriate to call it a "discourse analysis", as this may bring to mind e.g. particular approaches or epistemologies such as critical discourse analysis or poststructuralism (Burnham et al. 2008: 249-258), neither of which I use or adhere to. Rather, as Burnham et al. underline, content analysis in itself contains an interpretative dimension in which texts are treated as "narratives to be read, understood, and interpreted for meaning" (Burnham et al. 2008: 263), which is in line with my analytical strategy.

Since the theoretical basis and therefore my hypothesis regards neoclassical thought and Keynesian/Schumpeterian as opposites, I use the same dichotomy. The Keynesian and Schumpeterian schools are not identical but compared to neoclassical thought they have theoretical similarities and share several operationalisation categories in the coding scheme, see Appendix 1.

In the analysis and discussion, I will also touch upon the development in the WTO Secretariat of the secondary observations made by Meckling and Allan, i.e., the evolution of sustainable development vs. green growth, market-based vs. investments and subsidies, and environmental problems generally vs. climate change specifically, see section 2.2. These dimensions are, however, subordinate to the evolution of the four schools in my research and will therefore only be discussed shortly and not as a main part of the analysis.

Since the annual reports contain information that does not concern the environment and climate, I search the documents for certain keywords (decided by me)[4] to concentrate the analysis on the parts that may be relevant. Above all, this has to do with the time aspect. I believe there is value in examining the number of publications I have selected (annual reports and special publications), to get an overview as comprehensive as possible, but it naturally means that less time can be spent examining each publication. Since the annual reports, as mentioned, contain information that is not directly relevant, and as I believe that the keywords are general enough to lead me to the relevant sections, I do not consider this a major problem. Since the special publications specifically deal with environmental and climate issues, I read them in their entirety.

[4] The keywords I use are climate, environment, ecological, green, sustainable, natur (in order to capture both "nature" and "natural"), bio, warming, resource, renewable.

3.4 Demarcations and limitations

The analytical strategy, and the validity and reliability aspects, concern what is done as much as what is not done. In the following section, I therefore explain the demarcations and limitations of the approach and the results.

Apart from ideas of the Secretariat, the material studied includes ideas that are not the Secretariat's but that the Secretariat reports on or answers to. Similarly, the material can include neutral descriptions that do not necessarily represent the opinions of the Secretariat. It is therefore important to understand the context of the ideas expressed. Thus, it is only when an idea is accompanied by an opinion of the Secretariat that the idea is included in the analysis. The fact that the opinion can be expressed in different ways and can be either positive or negative highlights the importance of understanding the material and what is meant in the text.

In the analysis I focus solely on environmental and climate issues, in accordance with the theory and purpose of my thesis. This means that other theory-related statements not concerned with the environment or climate are not included. To illustrate, if the material mentions that subsidies are negative (a neoclassical category, see Appendix 1), this is not included. If the material, however, mentions that subsidies in relation to environmental or climate matters are negative, this is included.

If a theory-related idea is expressed, and if in the same passage examples of this are given or an elaboration of this is made, the idea is counted only once to avoid distorting the findings. For an idea to be counted more than once, it thus needs to be expressed in a new context, a new section, or as a new argument.

For natural reasons, the operationalisation has to be adapted to some extent to the material and case studied. However, since the operationalisation in this thesis is based on categories linked to the four schools, an idea has to have a clear connection to a category in order to be included. Thus, I try to keep the understanding of the ideas expressed in the material as narrow as possible, i.e. the ideas should match the operationalisation categories as much as possible with as little interpretation and adaptation as possible. For example, the neoclassical category "support for technology transfer to developing countries" does not mean that all technology transfer ideas are included. Technology transfer can take place between developed countries. Instead, it is only if the developing country aspect is stated in one way or the other that the idea is included. Likewise, a quote stating that research & development is good, is not the same as saying that subsidies for R&D should be introduced. Nevertheless, it is important to remember that some interpretation is necessary, based both on the approach and on the fact that it is unreasonable to believe that in an empirical material it would be possible to find ideas that word for word match theoretically based operationalisation categories. Again, understanding the material and the context in which ideas are expressed is important.

I also wish to highlight that sometimes the operationalisation categories are not necessarily mutually exclusive, and questions may therefore arise about how to categorise an idea found in the material. When the categories are representative of the same school of thought, this is not necessarily a problem since I draw

conclusions based on the total number of ideas connected to the different schools. It could, however, be a problem if the categories are representative of different schools. To give an example: the weak complementarity view (neoclassical) is partly based on that poverty and low incomes are obstacles to dealing with environmental challenges. This is not too far from the Keynesian idea that problems causing environmental degradation are weak growth and recession (see Appendix 1). Again, understanding the material, the context, and the theoretical basis of the economic schools, as well as reflecting on the material, are important to ensure that the expression is analysed correctly.

Lastly, I wish to highlight a limitation of the approach. The analysis does not capture different degrees of the Secretariat's opinion of ideas. If the Secretariat, e.g. expresses overwhelming support for a certain policy and support, but not as overwhelmingly, for another policy, both are included.

3.5 Validity and reliability

As to the questions of validity and reliability, I want to recall the weaknesses inherent to the "least-likely"-method (explained above on p. 14-15), adding another consideration. Since the choice of case when using the "least-likely"-method is made based on the conditions of the case in relation to the theory, it presupposes that the researcher has prior knowledge, and to some extent preconceived notions, about the explanatory power of the theory in relation to the case. While this does not need be an obstacle to the validity of the findings, it is important to bear this in mind both as a researcher and as reader. Of course, this is not further alleviated by the fact that I study the material and carry out the analysis myself. In the case of Meckling and Allan, the initial reading of the material was done by research assistants who had been told to compile everything related to the economy and the environment. They were not instructed to look for specific ideas connected with certain schools of thought (Meckling and Allan 2020c: 3). This naturally prevents preconceived notions from being at risk of clouding the results. Unfortunately, I do not have that possibility. What I can do is to have a starting point as neutral as possible.

Furthermore, as mentioned in section 3.4, while using the coding scheme created by Meckling and Allan, which should create a good basis for a comparison, an operationalisation always needs to be to some extent adapted to the material. Since I did not carry out Meckling's and Allan's study, and since we are different researchers, the analysis in this thesis is the result of my understanding of their research and of the material. While I do not think this prevents me from reaching comparable conclusions, it is important to reflect on.

In addition, when reading the extensive material used in this thesis and looking for expressions that correspond to certain theoretical assumptions, there is always a risk that the human factor plays a part, i.e., it is possible to miss an idea that perhaps should be included or to misinterpret an idea for something it is not. This

risk is, however, alleviated somewhat by two things. Firstly, that each school has several operationalisation categories connected to it, which prevents the analysis from being dependent on one category. Secondly, that I have used several publications that prevents that possible deviations in one publication have an abnormally large impact on the result.

Content analysis in general, as Burnham et al. emphasise, is dependent on the researcher taking care to make sure that all aspects of the process are thoroughly considered, which is often both labour and time intensive (Burnham et al. 2008: 264). There are thus several possible pitfalls that can affect validity and reliability, and it is therefore important that the analysis is carried out carefully.

4 Analysis and discussion

This analysis and discussion section is divided into two main parts. Firstly, I discuss the findings in the annual reports. I study them, as mentioned in section 3.2 Material, partly because this allows me to map the evolution year by year, partly because it is in line with the method of Meckling and Allan, which should create good conditions for a valid comparison. As will be evident, however, the annual reports do not offer enough in terms of economic environmental and climate ideas expressed by the Secretariat to form the basis of a comparison with the organisations studied by Meckling and Allan. Furthermore, there is a disparity between the different annual reports in terms of how much is written about the environment and climate. Nevertheless, there are some other interesting findings in the annual reports that I discuss.

Secondly, I discuss the findings in the special publications on the environment and climate published by the WTO Secretariat. These offer more in terms of ideas expressed by the Secretariat, and I therefore believe that the findings in them form a good basis for a comparison with the organisations studied by Meckling and Allan, as well as interesting insights into what the evolution of economic environmental and climate ideas look like in the WTO Secretariat specifically. Apart from discussing what the overall distribution of ideas reflecting the different schools look like, I carry out a more detailed discussion about what ideas, in terms of goals, problems, and policies, are expressed. It is not possible to discuss every statement that is in line with one of the categories. Instead, I discuss examples that I judge to be especially interesting, as well as the overall picture.

The fact that the annual reports do not offer much in terms of ideas expressed by the Secretariat is also the reason for my analysing and discussing the annual reports and the special publications separately. Since the special publications offer a completely different overall level of content, I believe it makes sense to split the analysis in two and draw conclusions in terms of the evolution based on the special publications. Furthermore, although it is regrettable that my analysis cannot be based entirely on the same material as the research by Meckling and Allan, I think that the special publications provide a good foundation.

In the analysis and discussion, I mention the limits-to-growth-perspective sparsely, and this perspective is only included in the figure that shows the evolution of the schools through the publications, Fig. 2 (see Appendix 2). The main reason for this is that the WTO Secretariat rarely expresses opinions in line with the limits-to-growth-perspective. Furthermore, my hypothesis focuses on the neoclassical and Keynesian/Schumpeterian schools, as these are the schools that are central to the conclusion made by Meckling and Allan that there has been a diversified paradigm.

4.1 The annual reports

As mentioned, the annual reports do not offer much in terms of economic environmental and climate ideas expressed by the Secretariat. Primarily, they report objectively on what has happened in the WTO and in its sub-committees throughout the year. There are rarely any opinions expressed by the Secretariat. Occasionally, the Director-General, as a representative of the Secretariat, expresses some opinions in the foreword (WTO 2007: III-IV; WTO 2008: IV; WTO 2022: 6). This is not enough, however, to form the basis for any conclusions regarding the purpose of this thesis. The environment and climate are mentioned (see below), but mostly in the context of describing how these issues have been addressed in the work of the WTO and its sub-committees during the year, rather than expressing opinions about what should be done to solve the challenges, and why.

The exception, interestingly, is the very first annual report available, the WTO Annual Report 1998, covering 1997 and early 1998. In this report, a section called "Trade and the environment" contains opinion-based discussions, including ideas in line with the four economic schools. The opinions expressed include both the neoclassical and Keynesian/Schumpeterian ideas.

In terms of the neoclassical perspective, the Secretariat highlights how there is a connection between poverty and environmental degradation, and that growth provides resources to manage environmental problems that poor countries may lack. Furthermore, the Secretariat highlights two problems contributing to environmental degradation, one being that resource scarcity is not internalised in prices, the other being subsidies that cause, for example, overfishing. As to solutions, they point out that assigning property rights and introducing some types of taxes are useful tools to come to terms with environmental problems.

Opinions corresponding to the Keynesian/Schumpeterian perspectives mainly revolve around the benefits of using clean technologies and technologies that are less environmentally harmful than conventional technologies. In addition, they posit that subsidies can be used in an environmentally positive way (WTO 1998: 54-55).

Another thing worth noting, but perhaps not very surprising, is that the Secretariat highlights the complementarity view between economic growth and the environment/climate, exemplified in the following quote: "As environment-friendly techniques and products become cheaper and, hence, the trade-off between prosperity and environment diminishes, environmental policies are likely to become important at earlier stages of development than in the past" (WTO 1998: 55). What also makes this quote interesting is that the potential trade-off is phrased as a process. There needs not to be a trade-off between prosperity and the environment, but the degree to which this is true hinges on environmental and climate actions, namely the fact that cleaner technologies become cheaper. The complementarity view is therefore, on the one hand, clearly stated, and on the other, not set in stone.

While there are numerically more neoclassical ideas than Keynesian/Schumpeterian ideas expressed in the 1998 Annual Report, the total

number of economic environmental and climate ideas expressed are overall very few. Furthermore, the types of opinions described above thus occur only in the WTO Annual Report 1998, which indicates that the 1998 report is a deviation. Why similar sections are not included in the annual reports since 1998 is unclear, but this means that the annual reports do not offer a good source to study the evolution of economic environmental and climate ideas expressed by the Secretariat. The rest of this section therefore consists of a short overview of how the environment and climate are actually mentioned in the annual reports. Furthermore, I explain how the annual reports contribute to findings that are interesting in a comparison to some of the secondary observations made by Meckling and Allan.

As mentioned, when it comes to environment and climate the annual reports deal neutrally on how these topics have been addressed in the activities of the WTO and its sub-committees, primarily the Committee on Trade and Environment. An example from one of the reports, 2012, shows that this can include that eco-labelling schemes were one of the topics discussed in the Committee on Trade and Environment, and how the Secretariat arranged workshops on various trade and environment-related matters. It is also emphasised that sustainable development and protection of the environment are not only permitted under WTO agreements, as long as the measures taken are not discriminating in nature, but that these objectives are "fundamental goals of the WTO" (WTO 2012: 3, 58-59).

While the annual reports do not offer much in terms of ideas corresponding to the different economic schools, they do show what type of environmental problems are addressed. Two of the secondary observations made by Meckling and Allan are that there was a shift from a general focus on environmental problems to a particular focus on climate change around 2006/2007, and that around the same time the goals of green growth emerged to complement and, for a few years overtake, the goals of sustainable development (Meckling and Allan 2020a: 436-437; for more on this, see section 2.2 and 3.3 in this thesis).

While it is not possible to deduce the Secretariat's position on these points from the annual reports, they show that what was addressed in the activities of the WTO and its sub-committees follow a similar trend. The problems of climate change and global warming as a result of the burning of fossil fuels and emissions were mentioned, but only sporadically, in the early annual reports (e.g. WTO 1998: 54; WTO 2001: 17) and it was not until 2007 that the issue of climate change was mentioned specifically in the foreword by the Director-General. In the foreword the following year, 2008, climate change is described as a "key consideration" for the WTO (WTO 2007: IIII; WTO 2008: IV). In 2009, there was for the first time a small sub-section on trade and climate change (WTO 2009: 47). Still in the 2022 report, climate change is mainly discussed as part of the more generally named section "Trade and environment" (WTO 2022: 120-121); there is, however, no doubt that climate change has become a bigger concern and is taking up more of the space in relation to other environmental issues beginning around 2007.

A similar discussion can be carried out regarding the goals of sustainable development vs. green growth. The objective of sustainable development is included in the preamble of the Marrakesh Agreement, the agreement establishing the WTO as an organisation in 1994 (WTOf). Thus, sustainable development is part

of the WTO legal documents. This is also reflected in the annual reports, where the goal of sustainable development is present throughout the years. Further, in 2016, it is noticeable that the concept of sustainable development becomes more formalised and concrete, which is perhaps not surprising considering the adoption of the *United Nations Sustainable Development Goals* in 2015 (WTO 2016). Green growth-related concepts, however, are mentioned for the first time in 2011 when the report mentions a UN event on the green economy. Since 2011, green growth-related concepts such as green growth, green economy, low-carbon economy, and circular economy are mentioned in most of the subsequent annual reports (WTO 2011; WTO 2012; WTO 2013; WTO 2014; WTO 2015; WTO 2016; WTO 2019; WTO 2020; WTO 2021; WTO 2022). In summary, sustainable development goals are still prevalent in the WTO annual reports, but green growth-related goals have become more prevalent. Thus, this happened somewhat later in the WTO annual reports than in the organisations studied by Meckling and Allan.

It is worth noting that the annual reports do not necessarily separate the goals of sustainable development and green growth. In the 2013 Annual Report, e.g. when reporting on workshops held during the year, it says: "On Aid for Trade and sustainable development and the green economy, the workshop, attended by WTO members and representatives of other international organizations, concluded that Aid for Trade contributes to sustainable development but much more needs to be done to make green growth a reality" (WTO 2013: 99). While it may be possible to separate the goals of sustainable development and green growth theoretically for research purposes, when studying the concepts empirically it is important to remember that in the empirical material, they may not be considered to contain different objectives.

In the section above, I discussed the WTO annual reports. In terms of the four economic schools of thought, there are not enough opinions expressed by the Secretariat to form a basis for a comparison with the organisations studied by Meckling and Allan, and therefore not enough material to be able to answer my research questions. Instead, as mentioned, the annual reports mainly describe neutrally what has happened in the WTO and its sub-committees during the year. The exception is the first annual report available, in 1998, but the reasons for this are unclear. The annual reports do show, however, that climate change started to become a topic of particular interest compared to environmental issues in general around 2006/2007, and that green growth-related concepts found their way into the work of the WTO around 2011. While this does not reflect the opinions of the Secretariat, it seems to confirm the findings of Meckling and Allan, concerning when climate change became a topic of particular interest; also in the WTO, climate change specifically came into focus around 2007. This strengthens their observation that this is when climate change became the environmental topic of interest in international organisations. It also puts into perspective the fact that, even though we have known about the human impact on the climate for much longer than that, climate change has not been at the top of the agenda, even among the various environmental problems imaginable that could possibly be addressed by international organisations, for longer than a little over 15 years.

Green growth and related concepts gained ground in the WTO somewhat later than than in the organisations studied by Meckling and Allan, and they have not overtaken the concept of sustainable development. It is important to remember, though, that sustainable development is present in the WTO founding documents, and that sustainable development and green growth are not necessarily considered two different concepts in the empirical material.

4.2 The special publications

In this section I discuss the findings in the special publications on the environment and climate published by the WTO Secretariat. These are accompanied by three figures (2-4) in Appendix 2. Not only do these publications contain more opinions expressed by the Secretariat; I also believe that they include interesting findings concerning the four economic schools of thought that can contribute to a comparison with the other organisations and to give answers to my research questions. This section is divided into four parts. The first three parts are analysis parts, describing and explaining the findings in the material. The first part will cover the two publications from 1999 and 2004, the second part the three publications from 2009, 2010, and 2011, and the third part the three publications from 2018, 2020, and 2022. The fourth part consists of a discussion.

The reason for dividing the section in this way is that it is possible to ascertain shifts in the ideas expressed that separate these periods. In the 1999 and 2004 publications, neoclassical ideas dominate. In 2009, 2010, and 2011, the paradigm diversifies and is dominated by both neoclassical and Keynesian/Schumpeterian ideas. In the last three publications, Keynesian and Schumpeterian ideas take over. As mentioned in section 3.2 Material, the special publications include two published in 2015. However, my research shows that they do not include any ideas related to either of the four schools (WTO 2015a; WTO 2015b). While this may be an interesting finding in itself, I believe that this indicates that they are deviations, and therefore they will not be discussed further here. In Fig. 5 in Appendix 2, the evolution of ideas is shown with Keynesian and Schumpeterian ideas split up to demonstrate that they are two different schools. As can be seen, however, the Keynesian and Schumpeterian ideas largely accompany each other.

4.2.1 A neoclassical paradigm (1999/2004)

In the 1999 and 2004 publications, neoclassical ideas dominate (see Fig. 3-4 in Appendix 2). The 1999 publication, *Special Studies 4: Trade and Environment*, is part of a WTO series on specific topics in relation to trade. Thus, in this study, the topic is the environment. The publication is based upon five environmental challenges, chemical-intensive agriculture, deforestation, global warming, acid rain, and overfishing. Interestingly, the study also has a special chapter on the

relationship between trade, economic growth, and the environment (WTO 1999a: 11), the thematical point of intersection in my thesis.

Early on, the publication reflects the complementarity view on the relationship between economic growth and environmental protection/climate mitigation. In the vein of weak complementarity, the publication expresses that in many countries, environmental problems partly stem from poverty. Therefore, economic growth is presented as part of the solution to these problems. As the publication states, this will allow the focus to shift from short term challenges to long term environmental issues (WTO 1999a: 6). Interestingly, though, the publication posits that economic growth is necessary but not sufficient to solve environmental problems. Rather, it emphasises the importance of a democratic process with political and civil liberties, where citizens can express their opinions and preferences, and where governments can be held accountable. This often goes along with a higher income and growth level. Thus, economic growth is deemed necessary for the betterment of the environment, because it allows people to focus on environmental issues, but only in combination with democratic institutions (WTO 1999a: 6-7). This democratic institutional dimension is not reflected in the views on the relationship between economic growth and environmental protection/climate mitigation (complementarity or conflict) expressed by the four economic schools. It is, however, one of the coding categories identified by Meckling and Allan that does not correspond with any of the four schools (see Appendix 1).

In accordance with one of the neoclassical problem-categories, environmental problems are on several occasions presented as the result of market failures. Two market failures are specifically highlighted. Firstly, a big problem is that externalities are not internalised in costs. This means that producers and consumers that cause environmental problems, such as pollution, through their activities do not account for the externalities caused. Secondly, that deforestation is the result of a non-existing market (WTO 1999a: e.g. 13, 17-18)[5]. Keynesian and Schumpeterian problem categories are not represented at all.

Even if the problems causing environmental degradation are not expressed according to Keynesian and Schumpeterian ideas, these perspectives are represented among the policy options encouraged, in particular the deployment of technologies with fewer externalities. On page 49, e.g. the importance of higher incomes for environmental protection (a neoclassical argument) is highlighted particularly because this implies the possibility of deploying technology that "reduces the pollution per unit of output" (WTO 1999a: 48-49). Interestingly, the publication also connects the deployment of these types of technologies to the relationship between economic growth and environmental degradation/climate change. The publication states: "Economic growth is harmful for the environment unless production becomes cleaner and less resource consuming…" (WTO 1999a: 3). While not contradicting the complementarity view, the statement does put conditions on the relationship between economic growth and environmental protection/climate mitigation in a way similar to how the 1998 annual report

[5] In order not to lengthen the text unnecessarily, I do not always list all the pages from which I could give examples. All pages are instead listed in the aforementioned Excel document (available upon request).

described the relationship as a process dependent on, among other things, climate-friendly techniques (see above p. 26). Another interesting observation is that despite the advantage of market-based policies among the policy suggestions in the report (see below), the Keynesian/Schumpeterian category of market solutions not being sufficient, is expressed. The publication therefore states that it is necessary for the government to intervene and balance different interests (WTO 1999a: 2, 5, 13-14).

Although Keynesian and Schumpeterian ideas are recommended in the 1999 report, neoclassical policies are proposed to a larger extent, in particular implementing different types of market policies, removing harmful subsidies, and defining property rights. One example is that the publication, as mentioned, indicates that deforestation is the result of the absence of markets. A proposed policy is therefore to establish markets for "carbon-binding services", which would create commercial incentives to protect forests. However, even if these markets are deemed desirable, the publication admits that they would be difficult to introduce in reality, considering the differences between countries in both the amount of forest and in CO2 emissions. When discussing the negative consequences of transportation on global warming, the publication states that the "first-best policy" includes introducing taxes on fossil fuels. Similarly, the publication posits that environmental consequences of increased trade can be compensated if governments introduce market-based environmental policies. Regarding the elimination of harmful subsidies, this is highlighted as relevant for several different sectors, including energy, agriculture, and fishing. Lastly, to avoid the phenomenon of the "tragedy of the commons", property rights and the right to manage resources need to be properly defined (WTO 1999a: e.g. 7, 13, 17-18, 20, 26, 34).

While having both a neoclassical majority among ideas and, being a publication of the WTO, a focus on trade, the 1999 publication interestingly only once mentions the advantages of the transfer of technology to developing countries, which is one of the neoclassical policy categories, (see Appendix 1). In the publication, this discussion is carried out in relation to a discussion about the Environmental Kuznets Curve, where the thought is raised that trade through the diffusion of technology may help developing countries both to lower and to pass the peak of the Kuznets Curve, and thus lead to both reduced pollution and higher incomes (WTO 1999a: 48).

In the 2004 publication, *Trade and Environment at the WTO*, there are fewer overall ideas expressed that are consistent with the schools, but the ideas of the neoclassical school are in an overwhelming majority among those expressed. In fact, Keynesian and Schumpeterian categories are represented only three times. The publication states that trade liberalisation should be increased because it stimulates growth, which in turn leads to environmental protection (WTO 2004a: 6), in line with the Keynesian idea that policy should address the problem of weak growth. Furthermore, subsidies that "capture positive environmental externalities" are described positively (WTO 2004a: 26).

In contrast, the neoclassical perspective is frequently represented. The weak complementarity view is expressed several times, especially in the sense that income levels and environmental protection are related. Examples include the sentiment that poverty reduction contributes to better environmental quality, that

higher incomes for agricultural producers in developing countries will lead to more sustainable farming, and that free trade and economic growth leads to less poverty and a better environment (WTO 2004a: e.g. 23, 32).

The problems behind environmental degradation are not expressed in explicit terms, but indirectly by way of the policies suggested. As mentioned above, subsidies are described as potentially positive, but also potentially negative, a neoclassical argument. As in the 1999 publication, subsidies are described as being harmful in the sectors of energy, agriculture, and fishing. In addition, market-based policy in the sense of internalising environmental costs, protecting property rights, and transferring technology to developing countries are all proposed, although only once or twice each (WTO 2004a: 7, 23, 25-26, 29, 31, 41).

Thus, the 1999 and 2004 publications clearly reflect the neoclassical paradigm that, according to Meckling and Allan, dominated in the 90s and early 2000s (see Fig. 3-4 in Appendix 2) This is especially true for the neoclassical weak complementarity view on the relationship between economic growth and environmental protection/climate change, since environmental quality is connected to income levels and development. Environmental degradation is primarily seen as a market failure, and different neoclassical ideas are advanced as solutions to the problems. In the 1999 publication, Keynesian and Schumpeterian ideas are represented among the policy options proposed, mainly in the form of the benefits of deploying clean technologies, but not to the same extent as various neoclassical policy options.

4.2.2 The paradigm is diversifying (2009/2010/2011)

Beginning with the publication from 2009, *Trade and Climate Change*, Keynesian and Schumpeterian ideas start to complement, and overtake, neoclassical ideas. As can be seen in Fig. 3-4 in Appendix 2, this can be described as happening in two phases. The first phase, based on the three publications from 2009-2011, sees Keynesian and Schumpeterian ideas jumping to an advantage over neoclassical ones in 2009, neoclassical ideas making a comeback in 2010, and Keynesian/Schumpeterian and neoclassical ideas balancing each other in 2011.

While Keynesian and Schumpeterian ideas are in an overall majority in the 2009 publication, the neoclassical weak complementarity view is still more prevalent than the Keynesian/Schumpeterian strong complementarity view. The publication states that increasing income levels and development leads to a greater demand for better environmental quality. Climate adaptation is, e.g. framed as dependent upon the "development context", including income levels. Climate policies are also emphasised as a potential positive side effect of development, and therefore not necessarily a burden for developing countries (WTO 2009a: e.g. 25-26, 51, 61). Interestingly, though, the publication also states that a positive relationship between income and environmental quality does not necessarily hold in the specific issue of climate change, since the consequences of emissions cross borders which risks reducing incentives to deal with the problem regardless of the income level (WTO

2009a: xii). The strong complementarity view is expressed twice and in the sense that taking certain measures in the building sector specifically will lead to reduced emissions with net economic benefit (WTO 2009a: 30, 34). Thus, taking measures with positive climate consequences will lead to positive economic consequences, compared to not taking the same measures, indicating a relationship in which climate mitigation and economic growth can drive one another.

The problems causing climate change are described according to both neoclassical and Schumpeterian thought. In neoclassical terms, the problem is described as due to the absence of a cost on emissions that leads to negative environmental externalities. Based on Schumpeterian thought, the publication highlights that a big challenge is the fact that established technologies are often more competitive cost-wise than renewable energy sources (WTO 2009a: 88, 110-111). This is an example of the Schumpeterian category of technological lock-ins and lack of innovation, putting environmentally-friendly alternatives at a disadvantage compared to conventional technologies, being a problem (see Appendix 1).

A wide variety of both neoclassical and Keynesian/Schumpeterian policy suggestions are proposed. Market-based policy that puts a price on carbon such as carbon taxes (Pigouvian tax), promoting the transfer of technology to developing countries facilitating economic development favourable for the climate, and eliminating subsidies that contribute to environmentally negative consequences are among the neoclassical policy proposals. Keynesian and Schumpeterian-wise, policy proposals include financing infrastructure projects for adaptation purposes, supporting research into how to best deal with the consequences of a changing climate, and using public funding to make renewable energy cost competitive. Further, in discussing technologies, the publication states that trade in climate-friendly goods can lead to strengthening local capabilities in developing countries especially, which means that they need not become dependent on technology transfers (WTO 2009a: e.g. x, 33, 42, 48, 81-82, 88, 96, 111). To some extent, this speaks against the neoclassical category that technology transfer is good, otherwise appearing in several parts of the publication (see above), even if it cannot be said to correspond to Keynesian/Schumpeterian ideas.

By far the most prevalent Keynesian/Schumpeterian idea is that the use of certain types of technology is central in combating climate change. This encompasses both technologies that bind existing emissions, such as carbon capture, and (primarily) the deployment of technologies with fewer externalities. There are many imaginable technologies that produce fewer externalities, including low-carbon and renewable energy sources, and the publication emphasises that it is necessary to pursue a variety of different technologies (WTO 2009a: e.g. 28, 30, 42, 80).

The WTO annually publishes a report covering a specific topic in relation to trade. The 2010 report, *Trade in natural resources* (WTOg) is the one from that year that I use in my study. In the publication, neoclassical ideas once again take over. Goal-wise, the weak complementarity view is represented while the strong complementarity view is not expressed at all. One example of this is the interesting case where the publication reviews the history of the economic debate on resource

scarcity, including explaining the Limits to Growth report by the Club of Rome, and the neoclassical economic viewpoint. In the context of this discussion, the publication concludes that those who have a pessimistic outlook on potential resource exhaustion (for example the limits-to-growth-perspective) fail to account for the fact that when income and educations levels increase, people tend to adapt to a more environmentally-friendly lifestyle (WTO 2010a: e.g. 65-68). This reflects the weak complementarity view on the relationship between the level of income and environmental quality.

In neoclassical terms, environmental degradation is, also in this publication, mainly described as a market failure, primarily through negative externalities not being reflected in prices (WTO 2010a: e.g. 3, 5, 7). Similarly, the proposed policies are mainly the use of market-based instruments, such as taxes, and strengthening and defining property rights, both of which are described several times as the "first-best policy" or similar (WTO 2010a: e.g. 13, 136, 147, 191). In accordance with Keynesian/Schumpeterian thought, the use of technologies that cause fewer externalities is advanced a number of times, especially in regard to emissions and the energy sector (WTO 2010a: e.g. 9, 88-89).

In the 2011 publication, *Harnessing trade for sustainable development and a green economy*, the neoclassical and Keynesian/Schumpeterian schools are overall expressed to a similar extent. Concerning complementarity, the weak view is expressed. The strong one is not, despite the related concept of "green economy" being part of the title (WTO 2011a: e.g. 5, 8). In terms of complementarity, this follows the trend seen in the 2009 and 2010 publications.

The publication does not explain environmental problems in accordance with the four schools. The policies suggested, however, reflect both the neoclassical and Keynesian/Schumpeterian perspectives. It is, for example, explained how market-based policy such as taxes and tradeable permits create incentives that guide environmentally-friendly choices, and how technology transfer can contribute to sustainable development in developing countries. Keynesian/Schumpeterian-wise, the deployment of cleaner technologies is also in this publication the most prevalent policy suggestion, as well as how governments can use support and procurement measures to influence consumption and production patterns in a more sustainable direction (WTO 2011a: e.g. 4, 8-9, 11-12, 17, 19-20).

Thus, the three publications from 2009, 2010, and 2011 demonstrate how the economic environmental and climate idea paradigm diversifies and how neoclassical ideas are complemented by Keynesian and Schumpeterian ones (see Fig. 3-4 in Appendix 2). In the 2009 publication, this manifests itself by Keynesian and Schumpeterian ideas overtaking neoclassical ideas to a great extent. In the 2010 publication, the situation reverts to resembling the earlier publications, especially the 1999 one. Lastly, in 2011, the number of total neoclassical and Keynesian/Schumpeterian ideas are at a similar level.

4.2.3 A Keynesian and Schumpeterian takeover (2018/2020/2022)

In the 2018, 2020, and 2022 publications, Keynesian and Schumpeterian ideas are in a majority (see Fig. 3-4 in Appendix 2). Furthermore, in two of the three publications, the strong complementarity view, the goal-idea that economic growth and environmental protection/climate mitigation are not only compatible but can and should drive one another, is more prevalent than the neoclassical weak complementarity view, which, as shown previously was not the case in any of the previous publications.

The 2018 publication has the title *Making trade work for the environment, prosperity and resilience*. While it is not an overwhelming majority, Keynesian and Schumpeterian ideas are more prevalent than neoclassical (see Fig. 3-4 in Appendix 2). Apart from expressing the strong complementarity view more often than the weak complementarity view, in several cases it does so explicitly. For example, on page 14, it is stated: "…economic prosperity, trade and the preservation of the environment can, in fact, reinforce each other". On page 20, similarly: "The rapid emergence of a global renewable energy sector is one of the clearest signs yet that the environment, economic growth and global trade can be mutually supportive". And on page 90, the publication states: "This means that governments, the private sector, civil society and intergovernmental organizations must pull in the same direction to tap into the numerous trade opportunities that can improve countries' economies and environments in tandem" (WTO 2018a: 14, 20, 90).

The weak complementarity view is still expressed to some extent; rather than focusing on improving development and reducing poverty in order to deal with environmental challenges, which was mainly the case in earlier publications, the 2018 one emphasises that environmental degradation and climate change risk undoing poverty reduction and risk adversely affecting the economy in the future. Consequently, it is deemed necessary to deal with these challenges (WTO 2018a: e.g. 2, 7, 12).

Related to the above, the publication also highlights the neoclassical categories that environmental degradation has negative impacts on productivity and welfare. The publication points out, for example, that temperature increases, rainfall changes, and pests due to climate change, will have consequences for crop yields and therefore agricultural production (WTO 2018a: e.g. 7, 27, 65). Otherwise, in terms of the problems causing environmental challenges, the publication points to both costs not being reflected, a neoclassical argument, and to the Schumpeterian idea that there are institutional obstacles to green production (WTO 2018a: 7).

Among the policy ideas of the four schools analysed in this thesis, the Keynesian/Schumpeterian idea of deploying technologies that cause fewer externalities is the most frequently suggested one. Keynesian and Schumpeterian-wise, however, the publication also proposes investing with the objective of promoting innovation as well as adapting the infrastructure to low-carbon conditions by, for example, constructing buildings that are energy-efficient and charging infrastructure for electric vehicles (WTO 2018a: e.g. 5, 23, 31, 37, 71).

The 2020 publication is called *Short Answers to Big Questions on the WTO and the Environment.* As the title indicates, the publication is centred around a number

of questions concerning the relationship between trade, environment, and the WTO. It is, however, worth pointing out that the total number of ideas reflecting any of the schools is low. Nevertheless, the publication does include some opinions.

In terms of goals, the strong complementarity view is expressed in the statement that more and more stakeholders are becoming aware of how business based on sustainable practices are opportunities to be seized. In terms of policy proposed, both the Keynesian/Schumpeterian one of deployment of clean technology and the neoclassical one that certain subsidies are environmentally harmful and should therefore be addressed, are advanced in the publication (WTO 2020a: 3-6, 13).

The publication does not express any limits-to-growth-viewpoints, but it does include some arguments that are interesting in a limits-to-growth-context. For example, the publication says that "Trade promotes development and economic growth, which, without effective policies in place, can lead to environmental degradation" (WTO 2020a: 3). While the inclusion of "effective policies" negates that this is a conflict-view on the relationship between economic growth and environmental protection/climate mitigation, it does problematise the concept. Answering a question about whether restricting trade would help the environment, the publication further states that this could potentially lead to consuming more resources but producing less, due to the fact that technologies and capabilities are not traded between countries, leading to a loss of efficiency (WTO 2020a: 3). This is a contrast to the limits-to-growth-argument that one of the problems causing environmental degradation is the increased consumption caused by efficiency gains, Jevons Paradox (see Appendix 1). This is a clear example of a fundamental difference between the views of the limits-to-growth-perspective and those of the publication on how production, consumption, and the environment are connected.

The last publication here included was released in 2022. Like the 2010 issue, the 2022 publication is the 2022 World Trade Report, this time on the topic of *Climate change and international trade*. In terms of complementarity, both the strong and weak complementarity views are expressed to almost the same extent. Regarding the weak complementarity view, both the aspect of how increased income improves the prospects for a better environment, and the aspect that environmental degradation and climate change will negatively impact the economy and poverty in the future are expressed (WTO 2022a: e.g. 9, 28, 58, 104, 134), thus continuing the trend seen in the 2018 publication regarding the latter.

Strong complementarity-wise, the growth potential of transitioning to a low-carbon economy and deploying clean energy is emphasised (WTO 2022a: e.g. 19, 125-126). As if to really hammer home the message, the publication further states about itself that "this report underscores how the goals of environmental sustainability and economic development are not only compatible, but inextricably and mutually dependent" (WTO 2022a: 23).

In terms of both how the problems causing environmental degradation and climate change, and the policies suggested to meet the challenges, the publication offers a wide variety of both neoclassical and Keynesian/Schumpeterian ideas. It frequently points out how climate change has severe consequences for welfare and production, and states that the issue is caused by market failures, as those causing the problems do not cover the costs (WTO 2022a: e.g. 9, 28-29, 53-54). The

publication further states, however, that another problem is that climate-friendly technologies are not sufficiently affordable nor efficient and are the subject of expensive investment costs as the result of them being emerging technologies (WTO 2022a: e.g. 19, 58). This Schumpeterian idea of technological "lock-ins" is also expressed explicitly in the publication: "Nearly 80 per cent of the world's energy is still generated by burning fossil fuels, notably oil, coal and gas, partly because supplies of renewable energy need to be scaled up, and partly because fossil fuel consumption is still subject to strong path dependence due to technological, infastructural, institutional and behavioural lock-ins" (WTO 2022a: 20).

The policies suggested, as mentioned, also reflect several of both the neoclassical and Keynesian/Schumpeterian ideas. Regarding the neoclassical school, policies that are advanced are mainly market-based solutions, technology transfer, and eliminating harmful subsidies. The publication states, for example, that "ideally there would be a global agreement on carbon prices" (WTO 2022a: 23) and that transfer of technology is important both for the reduction of emissions in developing countries, and for their development process. In terms of the removal of subsidies, the focus is primarily on fossil fuel subsidies specifically, more so than in earlier publications (WTO 2022a: e.g. 8, 19, 21-22, 45, 55, 59, 129). However, the publication also expresses that market-based solutions, while good, might not be enough, in line with Keynesian/Schumpeterian thought. It says: "…effective carbon pricing policies need to be complemented by other policies, including on innovation, energy and infrastructure, to ensure the availability of alternative, low-carbon technologies and to address economic and political roadblocks that may arise during the low-carbon transition" (WTO 2022a: 85).

Other Keynesian and Schumpeterian ideas expressed include that investing in climate-friendly technologies is important to stimulate their deployment, including subsidies for R&D and to consumers. It also advocates building climate infrastructure and describes the potential of carbon capture and storage techniques (WTO 2022a: e.g. 13, 15, 18, 22, 55, 108). The single most proposed policy, however, is the wide category of deploying technologies that produce fewer externalities. The importance of this policy suggestion follows trends from previous publications but is taken to a new level in the 2022 one where it appears 41 times in total, more than any other category in any other publication. It is expressed not only many times but also in several contexts, e.g. concerning switching to low-carbon or fossil free fuel for shipping, which is an environmentally negative consequence of international trade (WTO 2022a: 6-9, 12, 14, 18-20, 23-24, 52-54, 58-59, 71, 74, 85, 94, 104, 106, 108-109, 111, 116, 118, 123, 127, 129, 131, 134-135).

The three publications of 2018, 2020, and 2022 thus see the Keynesian and Schumpeterian perspectives overtake the neoclassical (see Fig. 3-4 in Appendix 2). At the same time, the strong complementarity view on the relationship between economic growth and environmental protection/climate mitigation becomes more prevalent than the weak complementarity view, a contrast to previous publications. While it has been an important policy suggestion in previous publications as well, the deployment of cleaner technologies is further promoted in the 2022 publication.

4.2.4 Discussion

The analysis of the special publications reveals interesting findings and patterns. For example, the material shows that there has been an evolution in the economic environmental and climate policy ideas expressed by the WTO Secretariat that has similarities with the evolution described by Meckling and Allan. I return to this in chapter 5. But there are also other findings. Firstly, the 2009 and 2022 publications are both centered specifically around the topic of climate change. These are also the publications where the Keynesian and Schumpeterian schools have the largest advantage over the neoclassical perspective. In the 2009 publication, Keynesian and Schumpeterian ideas are stated 13 times more than neoclassical, while the same number for the 2022 publication is 26 (WTO 2009a; WTO 2022a). Meckling and Allan report that Keynesian and Schumpeterian ideas and the connected strong complementarity view gained ground around 2006/2007 in connection with an increased focus on climate change specifically rather than environmental issues in general (Meckling and Allan 2020a). That climate changed specifically gained ground around these years was also something I noticed in the analysis of the WTO annual reports (see above p. 27-28). Thus, there seems to be a correlation between addressing the topic of climate change specifically and proposing Keynesian and Schumpeterian ideas.

Nevertheless, one of the case studies in the 1999 publication is global warming, and here neoclassical ideas have the largest numerical advantage over Keynesian and Schumpeterian ones. Furthermore, both the 2018 and 2020 publications focus on environmental topics in general, and both have more Keynesian and Schumpeterian ideas than neoclassical (WTO 1999a; WTO 2018a; WTO 2020a). While the subject of climate change and Keynesian and Schumpeterian ideas might be connected, this indicates that there has also been an evolution of ideas that go beyond the subject-wise connection.

As I mentioned when discussing the 2009 and 2022 publications, the Keynesian and Schumpeterian policy idea of deploying technologies that produce fewer externalities is by far the most suggested one (WTO 2009a; WTO 2022a). I want to discuss two aspects of this. Firstly, cleaner technologies may have a special relationship with trade that makes it unsurprising that they are widely advanced by the WTO Secretariat. As discussed regarding the 2022 publication, deployment of cleaner technologies and fuel in shipping would mean that transports can continue in a more climate-friendly manner. Transports are, naturally, an inherent part of trade. The WTO Secretariat recommending a more extended general deployment of these technologies might therefore have an obvious reason. Similarly, the neoclassical technology transfer policy idea, advocating the diffusion of technologies to developing countries for the sake of their environmental and economic development, includes in itself both a trade and a technology aspect. In this case also, then, the deployment of cleaner technologies is part of a practice (the transfer of technology) that is inherently connected to trade.

Secondly, and related to the discussion about the connection between addressing climate change and Keynesian/Schumpeterian ideas, it is perhaps possible that a widespread commercial use of cleaner technologies has only become

more realistic after 2006/2007, and that contributes to why these ideas are more prevalent than before. I want to emphasise, however, that I do not have a source confirming this assumption. This is a reflection that I made during the course of the research and which I think would be an interesting question to investigate further.

I end this section with a short discussion about the secondary observations made by Meckling and Allan (see page 6 for a more thorough explanation and description of their findings). As mentioned, these observations are subordinate to the evolution of the schools in my research. My discussion, then, only paints a rough picture of the relationship between these concepts in the publications of the WTO Secretariat. Environmental problems generally vs. climate change specifically has in practice already been treated in this discussion section. In terms of market-based policy vs. subsidies and infrastructure investments, Meckling and Allan base this dimension on some of the operationalisation categories connected to each school (see Appendix 1) where market-based policy is a neoclassical category and subsidies/infrastructure investments Keynesian/Schumpeterian (Meckling and Allan 2020a: 436). In the WTO Secretariat, subsidies and infrastructure investments have become more prevalent throughout the years, especially in 2011 and afterwards. In the 2009 publication, which focuses on climate change and where Keynesian/Schumpeterian ideas in general are more prevalent than neoclassical ones, market-based solutions are still proposed more often than subsidies and infrastructure investments. In the 2022 publication, which also has a specific focus on climate change, the situation is quite the opposite (WTO 1999a, 2004a, 2009a, 2010a, 2011a, 2018a, 2020a, 2022a). Rather than having a subject-wise connection between climate change and subsidies/infrastructure investment, as discussed above in terms of climate change and Keynesian/Schumpeterian ideas in general, the evolution of market-based vs. subsidies and infrastructure investments thus seems to be temporal.

I now turn to the dimension of sustainable development vs. green growth. As previously mentioned, (see p. 27-28) sustainable development is inscribed in the WTO founding document, the Marrakesh Agreement. Quite rightly, the concept of sustainable development is also included several times in the 1999 publication (WTO 1999a), the first special publication of my study. The green growth-related concept of low-carbon economy is included in the 2009 publication but only as being mentioned in a source. Green growth concepts are not mentioned in a publication itself until the 2011 one (WTO 2009a: 153; WTO 2011a). This mirrors the findings in the annual reports, where green growth-related concepts were mentioned for the first time in the 2011 one. It therefore seems as if this concept was put on the agenda and became relevant for the WTO around 2011.

As mentioned in the discussion about the annual reports, however, the concepts of sustainable development and green growth may not empirically be seen as different objectives related to either the weak or strong complementarity view, which they are in the theoretical basis for this thesis. Rather, it seems as though the concept of green growth emerged as a complement to sustainable development. The 2011 special publication states, for example: “Other aspects of the negotiations, ranging across agriculture, industrial goods, services and trade facilitation also support the *vision of sustainable development and a green economy* (emphasis

added)*”* (WTO 2011a: 16), indicating that they are seen as two sides of the same coin.

5 Conclusions and concluding remarks

My research questions in this thesis are:

- How have the economic environmental and climate ideas expressed by the WTO Secretariat evolved from the late 1990s to 2022?

- How does the evolution of economic environmental and climate ideas expressed by the WTO Secretariat compare to the evolution of ideas in the organisations studied in *The evolution of ideas in global climate policy* (Meckling and Allan 2020)?

As tools for my analysis, I have used four economic schools of thought: limits-to-growth, neoclassical, Keynesian, and Schumpeterian.

The analysis indicates that the evolution of economic environmental and climate ideas in the WTO Secretariat can be divided into three phases between 1999 and 2022. The first phase, represented by the two publications from 1999 and 2004, shows neoclassical ideas dominating. While Keynesian and Schumpeterian ideas are represented, neoclassical ideas are in a clear majority in terms of how the relationship between economic growth and environmental protection/climate mitigation is expressed, how the problems causing environmental protection are described, and what type of policy is proposed to deal with the problems.

The second phase, represented by the publications from 2009, 2010, and 2011, sees a diversifying paradigm where the Keynesian and Schumpeterian schools gain ground while neoclassical ideas are still reflected. Starting in the 2009 publication and later continuing in the third phase, the Keynesian and Schumpeterian policy idea of deploying technologies producing fewer externalities is greatly promoted. In terms of complementarity, however, the neoclassical weak complementarity is still more prevalent.

The third phase is represented by the publications released in 2018, 2020, and 2022. Here, Keynesian and Schumpeterian ideas are in a majority. Neoclassical ideas are not as few compared to the Keynesian and Schumpeterian ideas as the latter ones are compared to the former ones in the 1999 and 2004 publications. Nevertheless, Keynesian and Schumpeterian ideas being in a majority in all three publications (2018, 2020, and 2022) opens up the discussion of whether a new paradigm is on its way.

Concerning the neoclassical and the Keynesian/Schumpeterian schools, this evolution seems to mirror the evolution that Meckling and Allan conclude has taken place. Their research shows that there was a neoclassical policy paradigm in the 90s and early 00s. Keynesian, Schumpeterian, and limits-to-growth ideas were all represented, but neoclassical ideas dominated. This changed around 2006, when Keynesian and Schumpeterian ideas overtook neoclassical, and became superior to the other schools around 2009. Between ca 2012 and 2017 (the last year that Meckling and Allan study), neoclassical and Keynesian/Schumpeterian ideas were

at similar levels, even if Keynesian and Schumpeterian had an advantage during most of that period (see Fig. 1, Appendix 2).

The limits-to-growth-perspective is rarely expressed by the WTO Secretariat, (see Fig. 2 in Appendix 2). This deviates from the findings of Meckling and Allan, as their research shows that the limits-to-growth-perspective is expressed continuously, albeit on low levels, in the organisations studied by them.

There are a few things that are important to remember. Firstly, Meckling and Allan primarily base their research on annual reports, which is not possible concerning the WTO Secretariat. Only the 1998 annual report offers some opinions expressed by the Secretariat. While there are numerically more neoclassical than other ideas in the 1998 annual report (see p. 26-27 in this thesis), which should be the case theoretically since it was published during times when neoclassical ideas were dominant, I chose not to include these findings as the 1998 annual report is clearly a deviation.

Secondly, the period studied in this thesis is not identical to the period studied by Meckling and Allan, for reasons discussed in section 3.1.2. Nevertheless, the time periods that do converge show a similar evolution. In the WTO Secretariat publications from 1999 and 2004, neoclassical ideas dominate, in accordance with the conclusion by Meckling and Allan that the neoclassical paradigm prevailed at the time. While there are no WTO Secretariat publications available to study from the years surrounding 2006, when Keynesian and Schumpeterian ideas caught up with neoclassical ones, the 2009 publication shows Keynesian and Schumpeterian ideas having a big advantage over neoclassical ones, similar to how Meckling and Allan show that Keynesian and Schumpeterian ideas were superior to neoclassical ones around 2009 (see Fig. 1, Appendix 2). In the 2010 and 2011 publications, the differences even out in the WTO Secretariat. In the organisations studied by Meckling and Allan, these years still see a Keynesian and Schumpeterian advantage, but not as much as the previous years. The levelling out is thus happening in "their" organisations as well.

This is where the comparison must end. 2017 is the last year studied by Meckling and Allan, and in the case of the WTO Secretariat, there are no further results to analyse until 2018. The last three publications by the WTO Secretariat show, as previously discussed, that there might be a good reason to study if there is in fact a new Keynesian and Schumpeterian paradigm coming. In the same way, it is not possible to draw conclusions about the situation in the WTO Secretariat pre-1999.

The origin of my hypothesis was the fact that the WTO is based on neoclassical economic principles. The hypothesis reads:

The evolution of environmental and climate ideas, which means that Keynesian and Schumpeterian ideas have become more prevalent, cannot be seen in the case of the WTO Secretariat, which should instead continue to be dominated by neoclassical ideas.

As the analysis shows, the hypothesis turns out to be incorrect. Keynesian and Schumpeterian ideas did become more prevalent in the WTO Secretariat in the later part of the 2000s and beginning of 2010s. As a result of the "least-likely"-approach, this implies that there has been a change in the economic environmental and climate

ideas expressed by international organisations more generally. Neoclassical ideas have given way to a more diversified idea paradigm where Keynesian and Schumpeterian ideas have become more prevalent among the ones expressed and advanced by international organisations. Given the autonomy of international organisations and their ability to constitute and shape the social world and our perception of possible options for action, it is interesting to reflect on how this evolution affects how individuals and states view the environmental and climate crises, and what should be done about them. Both Meckling and Allan and myself observe that the idea that economic growth and environmental protection/climate mitigation are not only compatible, but can drive one another (strong complementarity), has emerged as part of the rise of Keynesian and Schumpeterian ideas. This view, one could say, fundamentally influences the constitution of the relationship between the economy and the environment, what policies could and should be implemented, and what actors and stakeholders might have an interest in these policies.

This study does not make it possible to draw a causal link between the evolution of economic environmental and climate ideas in the WTO Secretariat and the *Inflation Reduction Act* (IRA). But I believe that it is interesting to highlight the fact that the IRA includes policies that are Keynesian and Schumpeterian in nature. This, of course, is the result of many different factors, but perhaps the fact that the paradigm has seemingly diversified to include Keynesian and Schumpeterian ideas has contributed. As shown by Meckling and Allan (see p. 15 above), the diversifying paradigm gives both international organisations and states more policy tools.

While the annual reports do not offer much as to the evolution of ideas, they do offer information on the situation in the WTO regarding the secondary observations made by Meckling and Allan. In terms of environmental problem in general vs. climate change in particular, the annual reports show that climate change in particular gained ground around 2006/2007. The first special publication focused on climate change specifically was published in 2009, even if the topic had been mentioned in earlier publications. This seems to indicate that climate change did become a topic of particular interest in the WTO in the mid-00s, in accordance with the findings of Meckling and Allan. It also shows the advantage of the annual reports, as studying them allows for a year-by-year comparison.

Regarding sustainable development and green growth, both the findings in the annual reports and in the special publications indicate that sustainable development has been prevalent as a concept since the inception of the WTO. Green growth and related concepts, however, emerged in the WTO around 2011, a few years after the organisations studied by Meckling and Allan. In terms of market-based solutions vs. subsidies and investments, the annual reports do not offer much as this observation is connected to the categories of the four schools. Judging by the findings in the special publications, though, subsidies and infrastructure investments become more prevalent in the WTO Secretariat throughout the years and especially since 2011. This is also later than in the organisations studied by Meckling and Allan.

I finish with some suggestions on possible future research. It would be interesting to study the evolution since 2017 in the organisations studied by Meckling and Allan to see if Keynesian and Schumpeterian ideas have become as prevalent there as in the WTO Secretariat. The results show that there might be a paradigm change in favour of Keynesian and Schumpeterian ideas, but more research on the last few years in other international organisations is needed to draw conclusions. Furthermore, I believe it would be valuable with more thorough research on the secondary observations made by Meckling and Allan, as I only cover it in passing in this thesis, e.g. why only one of the three secondary observations seems to match the findings by Meckling and Allan.

It is also worth emphasising that my research does not explain *why* the situation looks like it does. Instead, it describes *how* the situation looks like, and only discusses some circumstances that could potentially contribute to an explanation of why, such as the connection between climate change and Keynesian/Schumpeterian ideas. To draw causal conclusions, however, further research is needed. Lastly, it would be interesting to research whether there is a temporal connection between the emergence of Keynesian and Schumpeterian ideas and cleaner technologies becoming more viable and possible to deploy on a large scale.

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Appendix 1

Copied from Meckling and Allan 2020b, Supplementary Table 1 – Deductive Coding Scheme. The colours are added of the author of this thesis to clarify which categories are connected to which economic school of thought. Yellow for neoclassical, blue for Keynesian/Schumpeterian and green for limits-to-growth.

Each coding category is an argument or a claim about the appropriate goals, problem framings, or policy instruments. If a category is associated with a school of thought, it is noted in parentheses (N, Neoclassical; K or S, Keynesian or Schumpeterian; L, Limits to Growth).

Coding Category

GOALS

G-sd Sustainable development: references to "sustainable development" as the general goal of policy.

G-gg Green growth: references to "green growth," "green economy," or "low carbon growth" as the general goal of policy.

G-wc Weak complementarity: growth and environmental protection are compatible; protecting the environment is necessary to reduce poverty; poverty reduction is necessary to improve environment. (N)

G-sc Strong complementarity: growth and environmental protection are not just compatible, but can drive one another; environmental protection can generate growth, through producing innovation and comparative advantage, etc. (K, S)

G-cf Conflict: there are tradeoffs between growth and environmental protection; policy should prioritize environmental action or climate mitigation over growth. (L)

G-dc Decoupling: the goal of policy is to decouple the economy from carbon/emissions.

G-mn Mainstreaming environment: goal is to mainstream environmental problems like climate change throughout the operations of the government, especially financial/economic policy.

G-eq Equity: references to "equitable," "social," or "inclusive" sustainability or green growth as a key policy goal.

G-rd Resilient Development: "resilient" development or growth is a key policy goal.

PROBLEMS

P-pv Poverty leads to environmental degradation.

P-wf Environmental degradation harms welfare/health/satisfaction. (N)

P-dg Environmental degradation harms productivity. (N)

P-mf Market failure: climate change/environmental degradation is a market failure; markets provide no incentives to curb pollution; climate change/environmental degradation is an externality. (N)

P-rb Rebound effect: efficiency gains leading to more consumption (Jevons Paradox). (L)
P-se Scarcity and entropy are hard constraints on growth. (L)
P-wg Weak growth: the problem that policy must address is weak growth or recession; policy should address weak growth or the recession. (K)
P-in Innovation: the lack of environmental innovation is a problem; environmental action is hampered by technological lock-in, bottlenecks in innovation process, or obstacles to the cycle of creative destruction. (S)
P-en Environmental problems generally: the document addresses a range of environmental problems, including water, acid rain, deforestation, ocean acidification, desertification, etc.
P-cc Climate change: the document is focused specifically on climate change as the central or main environmental problem (most substantive policy discussion is about climate change).
P-pr Production: the central problem of climate change and environmental degradation is high production levels, high levels of throughput in the economy, etc. (L)
P-co Consumption: consumption is a primary cause of environmental degradation/climate change; consumers need to reduce their carbon footprints or resource use. (L)
P-mt Metrics: the problem is that policies are targeting bad metrics (especially GDP); new indicators or targets are needed.
P-tx Trade is problematic: trade undermines environmental standards.
P-tr Trade is positive: trade is an essential aspect of a complementarity approach.
P-ip Institutional perspective: we need better institutions, rules, and governance in order to address environmental problems.

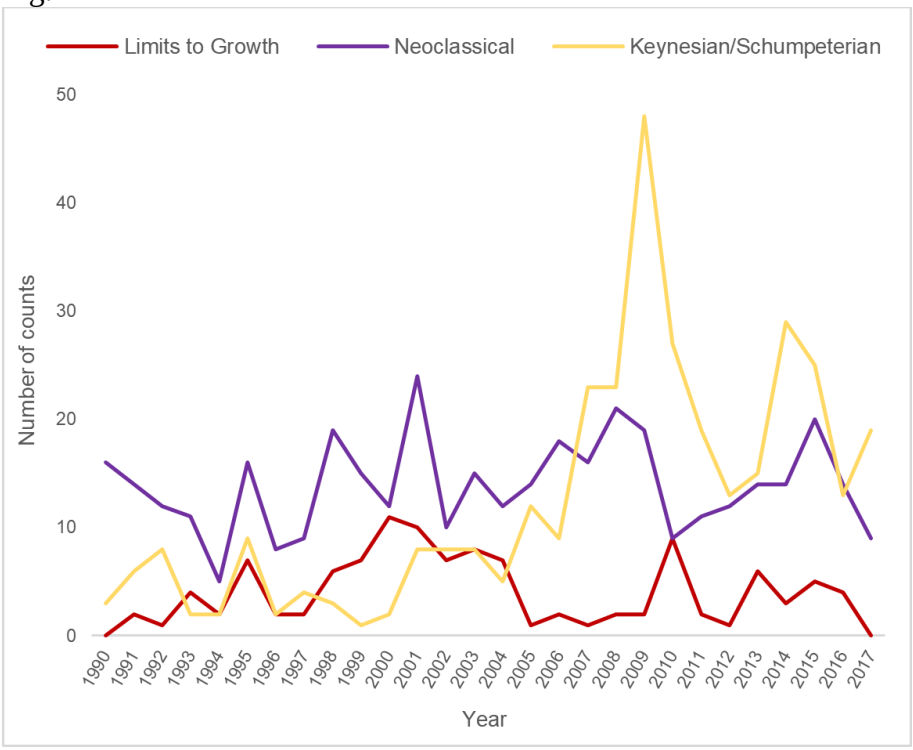
POLICIES

C-co Curbing consumption: we need to cut consumption and resource extraction in order to address climate change and environmental degradation. (L)
C-ww Win-win policies: the best policies are no-regrets policies that are beneficial even in the absence of environmental effects; e.g., water management, poverty reduction.
C-mk Market-based policy: support for creating markets that internalize the costs of emissions, environmental degradation; e.g., carbon pricing, ecosystem services. (N)
C-pr Property rights: clarifying rights to own and use resources will reduce environmental degradation. (N)
C-ir Incentives and regulations: the best policies combine incentives and regulations to "value environment." (N)
C-sx Subsides negative: eliminate harmful subsidies, which distort the market and support externalization. (N)
C-sd Subsidies for clean technology: support for subsidies to stimulate demand for cleantechnology; subsidies could provide necessary short-term stimulus. (K)

C-rd Subsidies for R&D: support for subsidies for research and development to create/increase innovation. (S)
C-if Infrastructure: support for infrastructure spending, especially low carbon infrastructure, grid improvements, etc. (K)
C-pv Private sector: support for mobilizing private sector finance and investment.
C-gv Government intervention: government intervention is necessary to resolve environmental problems; through sectoral reform and regulatory support. (K, S)
C-iv Investment: support for investment and financial mechanisms generally as important components of environmental action.
C-tt Technology transfer: support for the transfer of environmentally beneficial technology to developing countries; this will reduce environmental harm and equalize levels of development. (N)
C-tp Technology for pollution reduction: support for end-of-pipe solutions that allow the production of pollutants, so long as these are removed (e.g., carbon capture and storage). (K, S)
C-ct Clean technology: support for the deployment of technologies that produce fewer externalities (e.g., renewables). (K, S)
C-mk- Market-based policy is insufficient; distinct from the stronger Limits to Growth claim that market-based policies are ineffective or greenwashing. (K, S)
C-ir- Incentives and regulations are insufficient; distinct from the stronger Limits to Growth claim that incentives and regulations are ineffective or greenwashing (K, S)

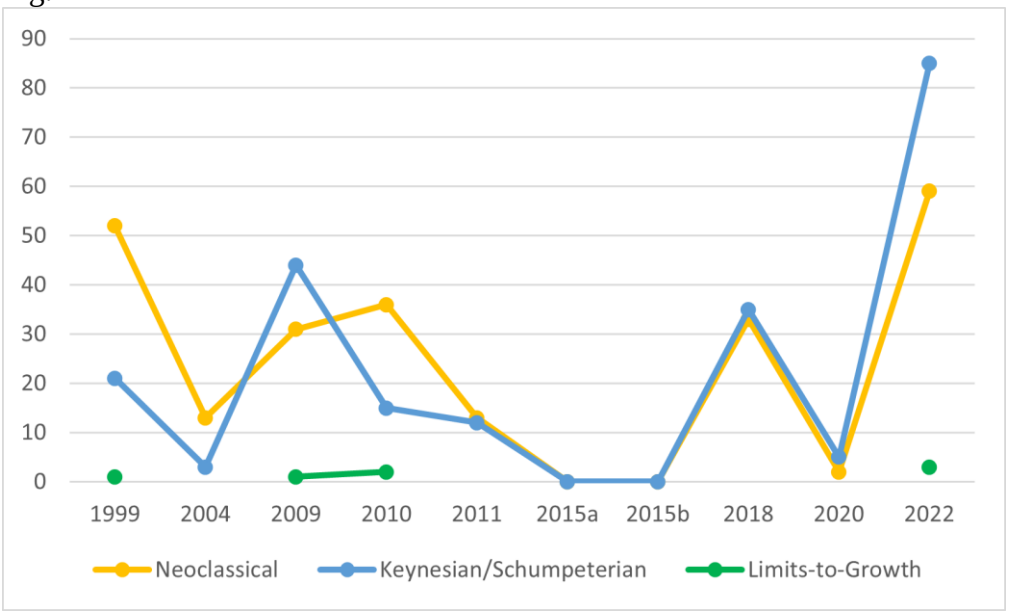
Appendix 2

Fig. 1



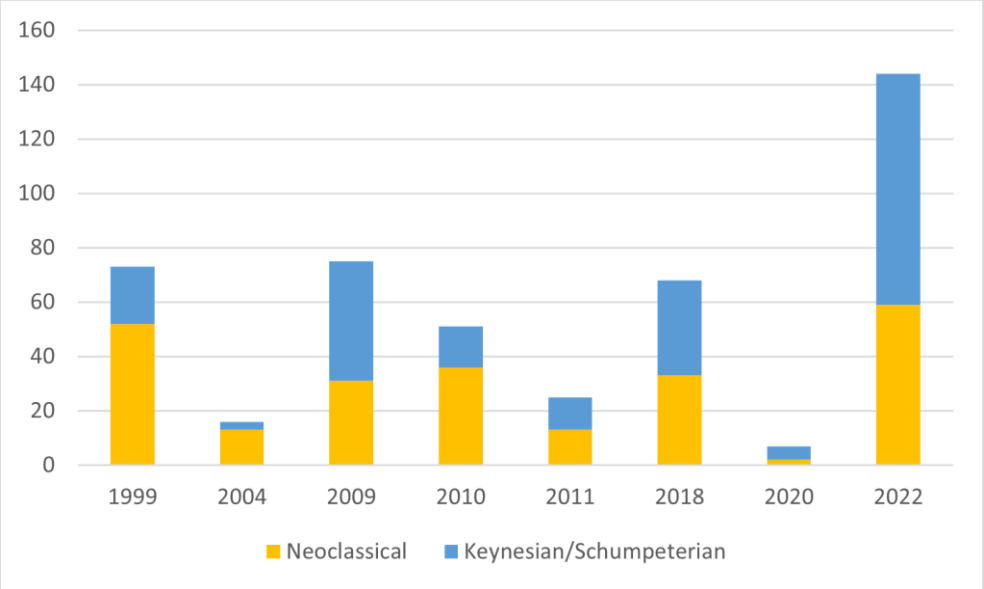
Evolution of economic environmental and climate ideas in the six organisations studied by Meckling and Allan (Meckling and Allan 2020: 435).

Fig. 2



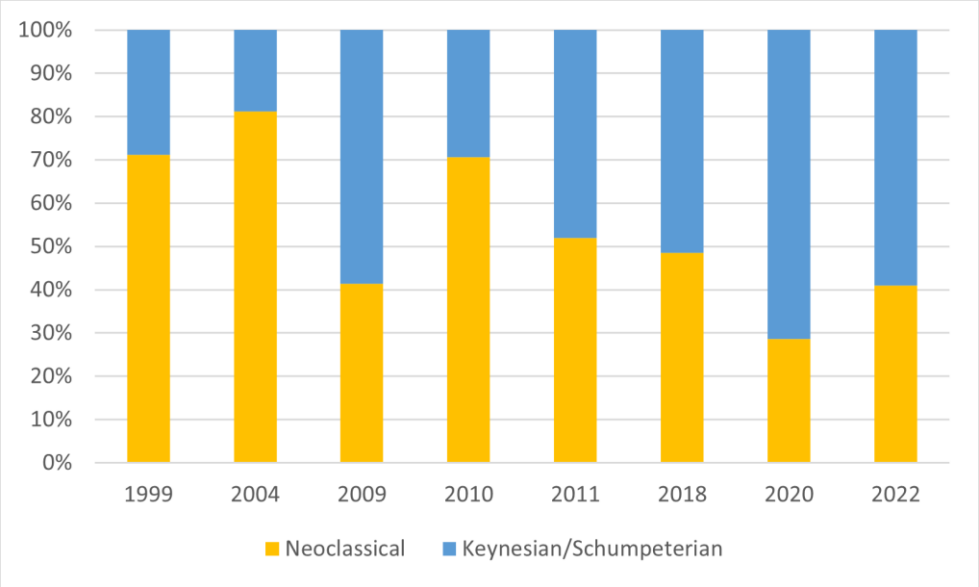
Evolution of environmental and climate ideas in the WTO Secretariat, number of counts in each publication.

Fig. 3



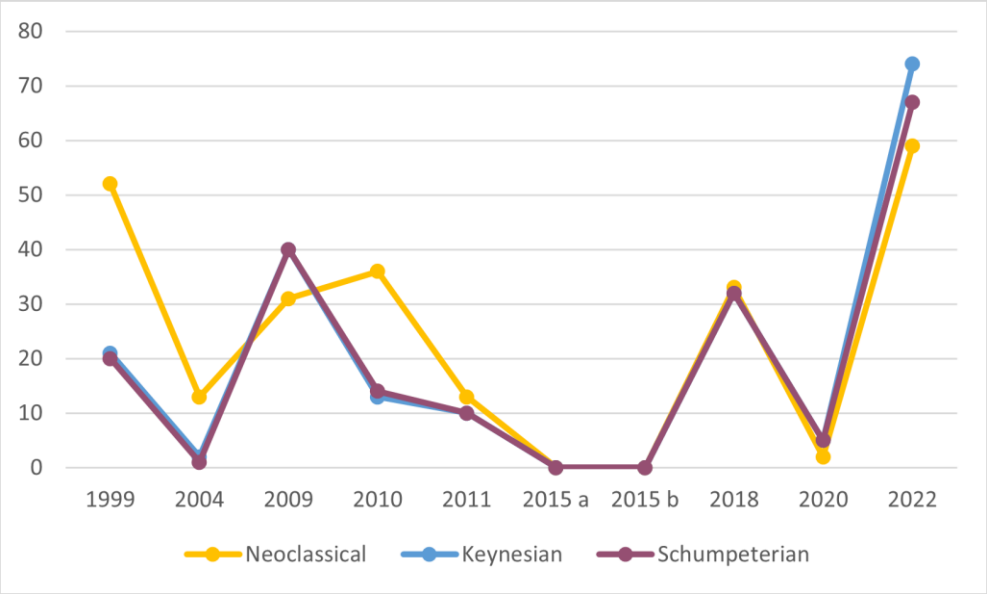
Evolution of economic environmental and climate ideas in the WTO Secretariat, number of counts in each publication and the schools' count in relation to each other.

Fig. 4



Evolution of economic environmental and climate ideas in the WTO Secretariat, percentage of the total amount of ideas in each publication that corresponds to the schools.

Fig. 5



Evolution of economic environmental and climate ideas in the WTO Secretariat, number of counts in each publication with the Keynesian and Schumpeterian schools split up

Appendix 3

List of the special publications on trade and the environment/climate used in the analysis in this thesis. Publication year: *Title*. Main authors

1999: *Special Studies 4: Trade and Environment*. Håkan Nordström and Scott Vaughan for the WTO Secretariat and the United Nations Environment Programme

2004: *Trade and Environment at the WTO*. WTO Secretariat

2009: *Trade and Climate Change: WTO-UNEP Report*. Ludivine Tamiotti, Robert The, Vesile Kulaçoğlu, Anne Olhoff, Benjamin Simmons, and Hussein Abaza for the WTO Secretariat and the United Nations Environment Programme

2010: *World Trade Report 2010: Trade in natural resources*. Marc Bacchetta, Cosimo Beverelli, John Hancock, Alexander Keck, Gaurav Nayyar, Coleman Nee, Roberta Piermartini, Nadia Rocha, Michele Ruta, Robert The, and Alan Yanovich for the WTO Secretariat

2011: *Harnessing trade for sustainable development and a green economy*. WTO Secretariat

2015a: *CITES and the WTO Enhancing Cooperation for Sustainable Development*. WTO Secretariat and the Convention on International Trade in Endangered Species of Wild Fauna and Flora Secretariat.

2015b: *Building pathways to sustainable development: Trade and Environment*.

2018: *Making trade work for the environment, prosperity and resilience*. WTO Secretariat and the United Nations Environment Programme

2020: *SHORT ANSWERS TO BIG QUESTIONS ON THE WTO AND THE ENVIRONMENT*. WTO Secretariat

2022: *World Trade Report 2022: Climate change and international trade*. Marc Bacchetta, Eddy Bekkers, Cosimo Beverelli, Mateo Ferrero, Emmanuelle Ganne, John Hancock, Rainer Lanz, José-Antonio Monteiro, Roberta Piermartini, Daniel Ramos and Ankai Xu. Other authors are Absar Ali, Antonia Carzaniga, Svetlana Chobanova, Lory Iunius, Jonathan Hepburn, Thomas Kräuchi, Juneyoung Lee, Kathryn Lundquist, Sajal Mathur, Hanh Nguyen, Yves Renouf, Victor Stolzenburg, Enxhi Tresa, Ayse Nihal Yilmaz, Khadija Zaidi, and Ruosi Zhang for the WTO Secretariat