



SWINS

Sustainable Well-being
through INvestment
in Social Services

D5.1 Review of macro- regularities about investment in social services

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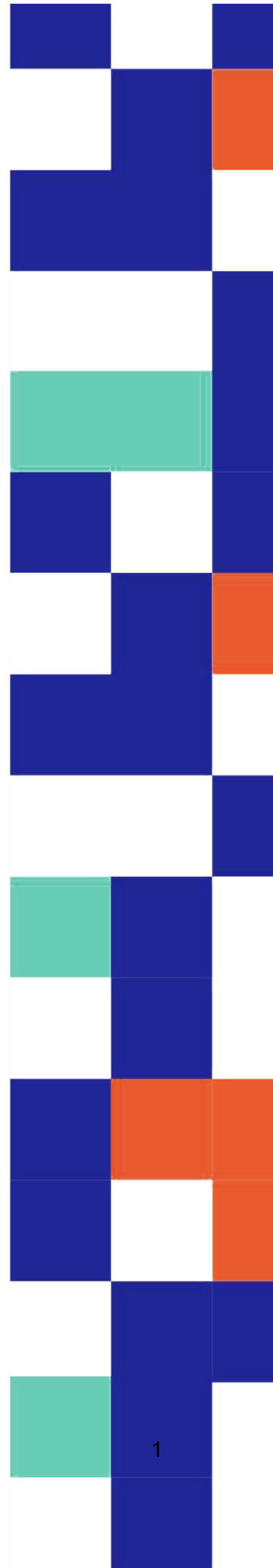




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Disclaimer

This Working Paper is part of Task 5.1, “Review of macro-regularities about investment in social services”. This Task aims to exploit the data sources review conducted in Task 4.1, the framework established in WP2-3 and variation between EU countries, this task proposes a sound review of existing evidence on the relation between investment in social services and the social and economic performances of target countries (e.g. inequality, poverty, employment, wellbeing), but also aggregate indicators of environmental impact (e.g. carbon emissions) This Report reflects the current data management practices and plans of the SWINS consortium, based on the information available at the time of writing. It is intended as an internal project deliverable and may be updated during the project lifecycle in response to changes in data collection, processing, or governance. The contents do not necessarily reflect the views of the European Commission or the granting authority. Responsibility for the information and data management approach described lies with the SWINS consortium.

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1. Introduction

Social services and policies are key components of European welfare states and take a prominent position in the social investment approach that emerged in the early twenty-first century (see e.g. Hemerijck (2017) and Verbist (2017)). They (can) have a profound impact on individual lives, behaviours, and achievements by protecting, enabling, and providing the basic preconditions for human development and participation in society (Ciani & Fattacciu, 2025). Social services and policies aim to promote individual and social wellbeing and to protect individuals from economic and social risks at different stages in the life course, thereby also affecting outcomes at the macro-level, be it often in an indirect way, as represented by Coleman's boat approach in Ciani and Fattacciu (2025). This approach is all the more relevant in the transformative phase that our societies are undergoing. This phase is characterised by large scale, interconnected, and not easily reversible changes in social, economic, political, environmental, and technological spheres (European Environment Agency, 2015). Hence, investment in social services and policies is also important when it comes to fostering an environment in which societies can develop transformative capacities required to navigate through the transformative phase. By providing social services and policies, societies can deal with this changing world by ensuring sustainable wellbeing. Thus, a better and systematic understanding of how the investment in social services and policies in European welfare states impacts key societal outcomes is a necessary endeavour and is an important stepping stone in the SWINS project identifying the macro-regularities of investment in social policies and to prepare the ground for testing their micro-foundation later in the project.

To this end, this paper reviews the existing evidence on the relation between investment in social services and policies and sustainable and inclusive wellbeing (SIWB). The review adopts a comparative approach and investigates the relations between (the change of) social investment efforts and key indicators related to different dimensions of sustainable wellbeing. This paper contributes to SWINS' aim to measure the return of investment in social services and thus highlights to what extent social services and policies are and can be an important driver of sustainable wellbeing.

First, a broader concept of sustainable wellbeing is discussed, as well as which indicators are used to measure sustainable wellbeing (Section 2). After that, we give an overview of all different social services and policies that play an important role throughout life, thereby building on the framework of the life course multiplier and discussing the interlinkages between the micro and the macro-level (Section 3). In Section 4 we review the macro-regularities with respect to sustainable wellbeing indicators for social services and policies in general (Section 4.1) and for a selection of social services and policies in particular (Section 4.2-4.6). This selection encompasses on the one hand in-kind interventions (early childhood education and care, education, health care), enabling social policies (active labour market policies) and the emerging domain of so-called green services. Section 5 concludes.



2. Sustainable wellbeing

Building on the SWINS theoretical framework (see Ciani and Fattacciu (2025)), we first discuss the different conceptual approaches that help to understand how social services and policies impact on sustainable wellbeing (Section 2.1). We then present in Section 2.2 the different ways in which international institutions have operationalised the concept of sustainable wellbeing. The corresponding indicators they highlight (see Section 2.3) will inform the indicators that are the focus of the literature review later in this paper.

2.1. Conceptual approaches

Ciani and Fattacciu (2025) provide three useful approaches that can be employed to situate how the investment in social services and policies can ensure sustainable wellbeing. These approaches will inform our literature review.

First, the **capability approach** is useful to evaluate how social services and policies play a role in the different mechanisms to enhance multidimensional wellbeing (Nussbaum, 2011; Sen, 1999). Social services and policies can help to develop capabilities so that individuals and welfare states can evolve towards sustainable wellbeing. By stressing the difference between means and ends of development, the capability approach focuses on what individuals are able to do and to be (capabilities), instead of only focusing on resources (including income) or utility. With these capabilities, individuals have the real freedoms and opportunities to achieve and shape their wellbeing. Within the SWINS project, the capability approach is used to investigate how social services and policies influence capabilities and how these capabilities are connected to micro-level and macro-level mechanisms. This is relevant because social services and policies can have an impact both on the micro-level and macro-level, and on the interaction between micro-level and macro-level themselves.

Next, the **social investment approach** has become more important in welfare state thinking in the last years. The rationale behind this approach is that social services need to focus more on active and productive policies, and less on protective and passive measures (Hemerijck et al., 2022). According to the social investment paradigm, social services need to invest in individuals' capabilities ex-ante, so that they can participate productively in dynamic labour markets and changing societies (Bonoli, 2010; Morel et al., 2012). The social investment approach focusses on the fact that welfare systems need to support individuals at key transitions during their lives. With the provision of social services and policies, welfare states can promote equitable access to opportunities to achieve sustainable wellbeing. This approach considers the investment in social services and policies as an attempt to empower individuals on the micro-level and thereby create macro-level effects.

Since the early 2000s, increasing emphasis has been placed on the need to reach economic goals (increasing growth and development) and social goals (protection of social rights and reduction of inequalities) within planetary boundaries, which initiated the approach of **sustainable welfare and eco-social thinking**. Especially at the European level in the pre-2022 era when sustainability gained

a significant political and cultural space (see also Ciani and Fattacciu (2025)), growing attention has been devoted to integrating the social and environmental dimensions — referring, on the one hand, to sustainable and inclusive wellbeing, and, on the other, to sustainable welfare policies and eco-social policies. Sustainable welfare policies are designed to promote social rights within planetary boundaries. The concept of sustainable welfare is connected to the ideas of degrowth and post-growth that have recently emerged. According to this approach we need to change how we think about welfare, by measuring wellbeing instead of GDP and by focusing on sufficiency (i.e. having enough instead of maximising consumption by setting a socially negotiated limit between need and excess). These ideas have in turn contributed to the development of the concept of eco-social welfare, which proposes that social and environmental goals are deeply intertwined and should be considered together. These new insights and approaches have implications for the development of measurement frameworks, encouraging the assessment of returns on investment in social policies and services less in terms of GDP growth, income, or monetary poverty reduction, and increasingly through indicators that measure wellbeing beyond GDP.

Throughout this review, we incorporate these different approaches and also try to highlight the possible complementarities and contradictions. Until now, the social investment approach has been the dominant one when it comes to considering social services and policies. The approach of sustainable welfare and eco-social thinking, however, makes it clear that in times of the climate emergency and other environmental challenges, this may not be sufficient. In the next section, we discuss the different dimensions of sustainable wellbeing that should be considered.

2.2. The operationalisation of sustainable wellbeing by international institutions

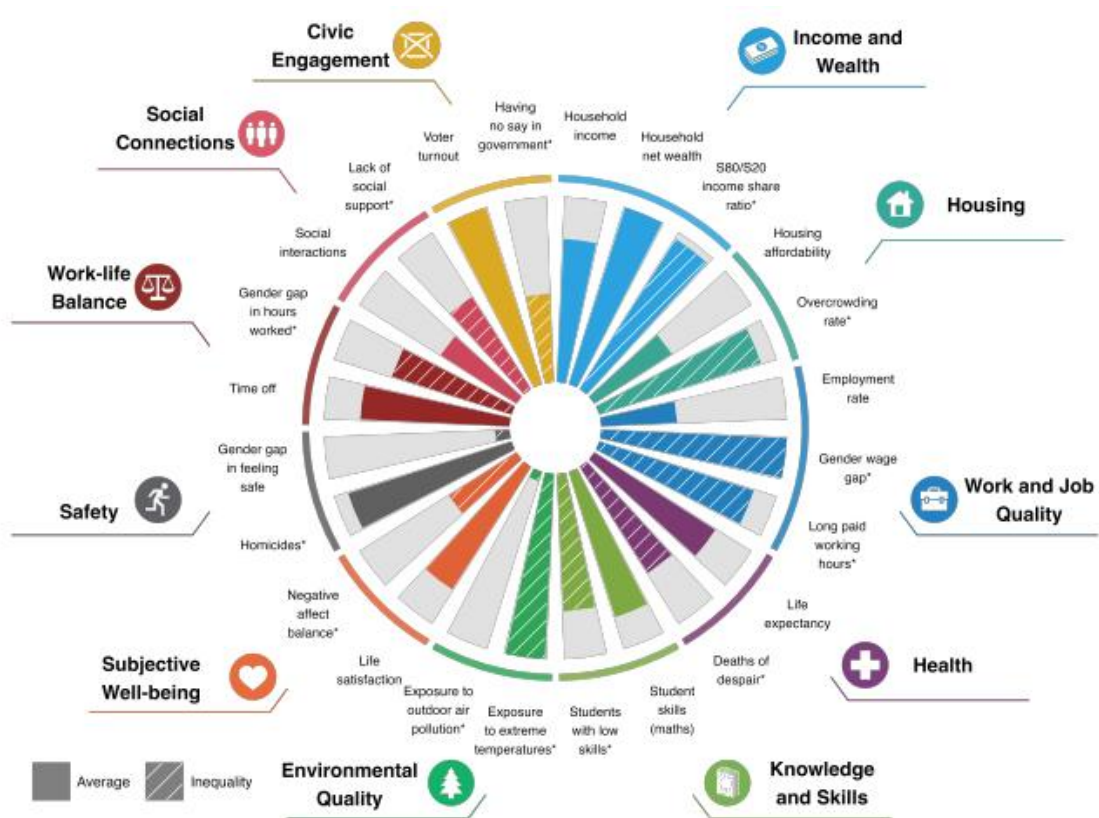
To strengthen the societal ability to pro-actively navigate the transformative phase societies are going through, welfare states need to focus on sustainable wellbeing. Sustainable and inclusive wellbeing deals with the issue of compatibility between economic, social, and environmental goals (Benczur et al., 2024). Sustainable and inclusive wellbeing is also an important focus in international discourse. Over the last decades, different institutions used varying approaches and indicators to describe and measure sustainable wellbeing. This has led to the development of metrics aimed at enabling an assessment of sustainable wellbeing. Given its intrinsically multidimensional nature, this resulted often in the identification of dashboards of indicators rather than single composite measures. The international development of frameworks and indicators can be considered as relevant steps within the process leading to the definition of sustainable and inclusive wellbeing.

In 2011, the **OECD** created a Wellbeing Framework to measure societal progress beyond GDP. The main goal is to assess the wellbeing of individuals and societies by looking at multiple aspects of people's lives: economic, social, and environmental outcomes. One of the objectives is to support governments in designing policies to achieve sustainable wellbeing. The framework also focusses on the resources needed to sustain wellbeing within planetary and social boundaries in the future (OECD, 2011b). This framework falls within the sustainable welfare approach. The framework relies on 11 indicators to measure the wellbeing of countries (see Figure 1). It focusses on income and



wealth, civic engagement, social connections, work-life balance, safety, subjective wellbeing, environmental quality, knowledge and skills, health, work and job quality, and housing. These different indicators are in turn measured using two or three outcome variables per indicator (OECD, 2011b).

Figure 1: Wellbeing Framework (OECD)



Source: OECD (2011b)

Note: Example of Belgium’s wellbeing according to the OECD framework in 2024 (OECD, 2024a). “Longer bars always indicate better outcomes (i.e. higher wellbeing), whereas shorter bars always indicate worse outcomes (lower wellbeing) – including for negative indicators, marked with an *, which have been reverse-scored. Inequalities are gaps between those at the top and those at the bottom of the achievement scale in each dimension, differences between population groups, or the percentage of the population falling under a given deprivation threshold and are shaded with stripes” (OECD, 2024a, p. 1).

In 2015, the United Nations member states adopted the 2030 Agenda for sustainable development. With this Agenda, they started a plan of action for people, planet, and prosperity that is simultaneously tackling economic, social, and environmental issues. This has been translated into the 17 Sustainable Development Goals (SDGs) (see Figure 2). They focus on the fact that ending poverty and other forms of deprivation must be coupled with strategies that enhance health and education, reduce inequality, and stimulate economic growth, all while addressing climate change and preserving our oceans and forests (United Nations, 2015). Unlike the Millennium Development Goals (a set of UN goals adopted for the period 2000-2015, which focused primarily on reducing extreme poverty and improving basic human development outcomes in the Global South), the SDGs

are addressed not only to countries in the Global South but to all countries. By doing so, they call into question not just the “quantity” of development but also its “quality”, thereby challenging the prevailing development model itself. The SDGs therefore fit within the sustainable welfare approach. The 17 SDGs are no poverty, zero hunger, good health and wellbeing, quality education, gender equality, clean water and sanitation, affordable and clean energy, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions, and partnership for the goals. The SDGs are supported by an extensive indicator framework that allows for the systematic assessment of progress across the 17 goals, comprising 169 targets. Progress towards achieving the SDGs is tracked using a global indicator framework comprising 232 indicators (United Nations, 2015).

Figure 2: Sustainable Development Goals (United Nations)



Source: United Nations (2015)

Also in the **European Union** there is an increasing focus on sustainable wellbeing. In 2013, the European Commission introduced the Social Investment Package. The main objective is to focus on the individual, the society at large, and ensuring the financial sustainability of the welfare state. With this, the European Commission recommended to invest in social policies, social services, and cash benefits that activate and provide opportunities. This is to ensure that European Union member states allocate resources effectively to social investment, by placing greater emphasis on policies such as childcare, education, training, active labour market policies, housing support, rehabilitation, and health services (European Commission, 2013). In 2017, the European Parliament, the Council, and the Commission declared the European Pillar of Social Rights (EPSR). The EPSR has 20 key principles aimed at equal opportunities and access to the labour market, fair working conditions, and social protection and inclusion (European Commission, 2017). The EPSR focusses on creating more and better jobs (also in the emerging green and digital sectors), better skills and equal opportunities, and a reduction of poverty and social exclusion. The European Pillar of Social Rights is supported



by the Social Scoreboard, an indicator framework that measures progress and convergence among the EU member states in the implementation of the Pillar's principles.

Within the EU, there are also initiatives that focus on the environmental part of sustainable wellbeing. For example, with the European Green Deal, member states committed to reduce greenhouse gas emissions by 55% from 1990 levels by 2030 and to become climate neutral by 2050. It promotes a transition that protects people and the planet, while being economically efficient and socially equitable (European Commission, 2019). To avoid regional inequalities growing in the green transition, the Just Transition Fund supports the territories most affected by the transition (European Commission, 2021). In addition, the Social Climate Fund can be used by Member States to support heavily affected citizens (European Commission, 2023a).

In sum, this process of developing initiatives focusing on sustainable wellbeing found a synthesis in the identification of the concept of SIWB who saw a coordinated effort to develop metrics and indicators (Benczur et al., 2025). The European Union dashboard to measure Sustainable and Inclusive Wellbeing offers also a wide range of indicators to measure sustainable wellbeing (Benczur et al., 2025). It provides a framework to measure wellbeing beyond traditional economic measures such as GDP, using 50 different indicators. The structure is based on six core dimensions: current wellbeing, socio-economic resources for future wellbeing, resilience to social and ecological challenges, natural capital and planetary boundaries, inclusiveness, and institutional quality. Therefore, the development of the SIWB concept is part of a broader process leading to the definition of a political and measurement paradigm that places human and planetary needs at the centre of economic activities, ensuring that these needs are met equitably for present and future generations.

2.3. Indicators to measure sustainable wellbeing

From the previous section, it is clear that sustainable wellbeing can be measured using various indicators. For the literature review that will be presented in the following sections, we need to make choices in this multitude of indicators. Our selection is on the one hand informed by the SWINS theoretical framework (see Ciani and Fattacciu (2025)) and on the other hand based on pragmatic arguments, related to the selection of social services and policies that are investigated.

The investment in social services and policies can impact different layers. It can be used as a lever for growth and competitiveness, to realise social rights, and to impact sustainable and inclusive wellbeing (Ciani & Fattacciu, 2025). First, SWINS tries to measure how different social services and policies affect GDP growth, the productive capacity, and fiscal sustainability of welfare states. By increasing human capital and labour market participation, the investment in social services and policies can lead to these goals (Ahn & Kim, 2015). However, growth is not an end in itself, but can be used as a potential enabler of social and ecological goals. The second objective of the investment in social services is the realisation of social rights regarding employment, poverty, and inequality. Once employment growth is achieved, employment can be seen as an input for reducing poverty and also for increasing economic growth (Bakker & Van Vliet, 2022). The investment in social

services and policies is also expected to have a redistributive impact, by reducing poverty and inequality. Providing public services can help ensure that everyone has the same opportunities throughout their life, and that nobody is more disadvantaged from the beginning (Sakamoto, 2023). This dimension is key to understand the macroeconomic outcomes of social investment and its ability to foster social cohesion and prevent anyone from being left behind. The last layer considers sustainable and inclusive wellbeing, thereby broadening the perspective that the first two groups of indicators offer. Here the focus is on indicators of human and planetary wellbeing that go well beyond traditional economic measures such as GDP. This refers back to the SIWB framework where measures of GDP are complemented by a wide set of indicators that capture the multifaceted nature of social progress, including quality of life, social and economic resilience, environmental sustainability, and institutional inclusiveness.

SWINS therefore focuses on three areas: productivity, rights, and sustainability. Based on these different objectives of social service investment and on SWINS' theoretical framework (see Ciani and Fattacciu (2025)), we will use several macro-indicators to measure the three different dimensions of sustainable wellbeing: economic, social, and environmental performances (see Table 1). While there is a multitude of potential indicators, we will focus mainly on variables that are present in current literature and that can be operationalised and measured directly. To measure the impact of social service investment on economic outcomes, we will use income, economic growth, and employment (also the distinction between male and female employment rates). As explained earlier, we also give attention to measures that go beyond GDP and narrowly defined economic indicators. Therefore, poverty and inequality will be used as social indicators of sustainable wellbeing. The environmental dimension is an equally important part of sustainable wellbeing but is not yet very prominent in existing research and few indicators have been used in practice in this context. Our search has concentrated here on carbon emissions and particulate matter as indicators to measure this environmental dimension, though other indicators such as biodiversity would also qualify in principle (but have not been used yet in practice).

Table 1: Overview of indicators of sustainable wellbeing

Dimension of sustainable wellbeing	Indicator
Economic performances	Income, economic growth, employment
Social performances	Poverty, inequality
Environmental performances	Carbon emissions, fine particulate matter



3. Social services: categorisation and measurement of impact

In this section, we first give an overview of all different social services that play an important role throughout life. We build further on the SWINS theoretical framework (see Ciani and Fattacciu (2025)) for the categorisation of social services, and to state which services we will study in our literature review (Section 3.1). In Section 3.2, we then focus on the interlinkages between the micro-level and the macro-level, and we define what we understand by macro-regularities and how they will be measured. Last, we discuss possible conceptual and measurement issues.

3.1. Categorisation and selection of social services

Social services and policies refer both to in-kind interventions and to enabling social policies (Ciani & Fattacciu, 2025). The European Commission (2022, p. 48) describes it as “a range of services offered to the public, intended to provide support in addressing the wide range of social needs of a society, of certain groups within that society, and of individuals in specific situations”. It refers to different types of personal assistance that provide welfare at both the individual and societal level. This is connected to the social investment approach. The idea here is that social services and policies need to support individuals during their entire life-course (see Figure 3). The different services and policies target particular life-stages of individuals on the micro-level and have an impact on the macro-level. All different phases within life are interconnected and the effects need to be considered as results from a cumulative process over all different life stages.

The first life stage in which social services play an important role, is during early childhood. Here, early childhood education and childcare (ECEC) focuses on young children, where it influences children’s early development. ECEC refers to all types of education and care for children up to primary education (OECD, 2017).

Education is the next social service to influence different stages of life: childhood, adolescence, and young adulthood. A distinction can be made between primary, secondary, and tertiary education. In most countries, primary and secondary education is compulsory. During their time attending this education, children and young people are taught general and specific skills that will prepare them for the labour market and wider society later in life (Kuitto, 2016). One of the main goals of investing in education, is the creation of human capital (Becker, 1964; Esping-Andersen, 2002b).

Lifelong learning is also an essential part of education. It refers to all sorts of formal, informal, and non-formal learning that individuals experience throughout their lives, starting with education during early childhood. It involves all the skills, knowledge, and behaviour that people pick up in their daily experiences. Lifelong learning is beneficial for social inclusion and personal development, and it results in higher competitiveness and employability (Laal & Salamati, 2012).

Vocational training can serve as a bridge between lifelong learning and active labour market policies (see next stage of life). Vocational training provides essential skills, thereby enhancing employability, supporting personal development, and encouraging active citizenship (European Commission, 2023b). It supports continuous development, and it ensures that people are ready for the labour market.

In the next stage of life, social services remain important: labour market policies and work-life balance policies are essential for large parts of our lives. This has an impact on the individual level, making sure that there's higher employability, more skills, and more income support (Hemerijck et al., 2022). On the macro-level, effective active labour market policies (ALMP) and policies to reconcile work may result in higher employment rates and reduced (gender) inequality in the labour market (Nieuwenhuis et al., 2012).

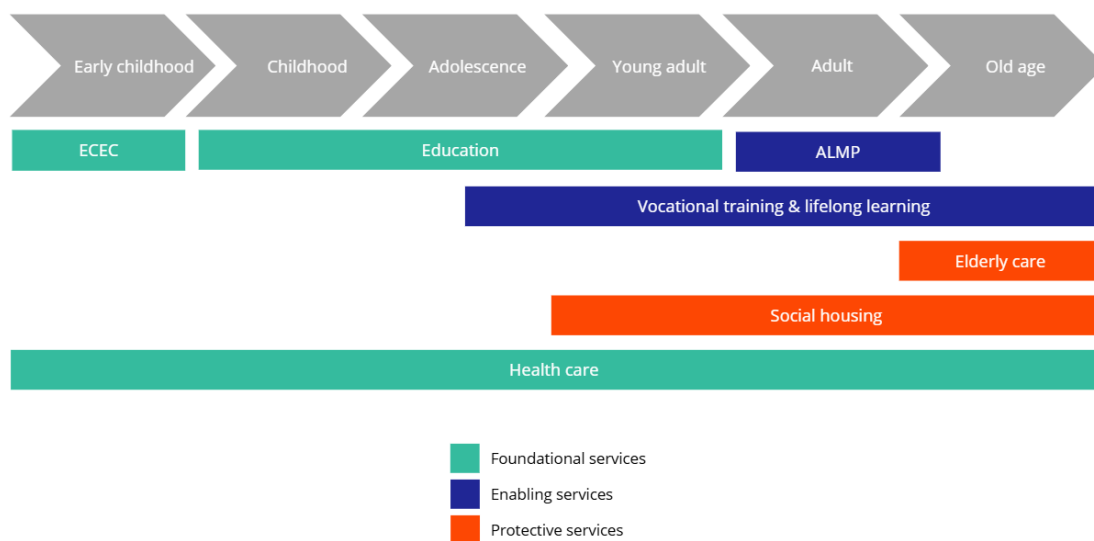
During the last stage of life, social services are focused on people of old age. There are different types of services that offer support and care for the elderly with increasing vulnerability and disabilities. Care facilities, home assistance, and other social services make sure that older people can still live as independently as possible (Humphries et al., 2016). While providing efficient care for the elderly, it also creates opportunities for informal carers to enter the labour market (Taylor-Gooby, 2004).

Next, there is a social service that is involved at every stage of life: health care. It is not only important to create human capital during the life-course, but one also needs to be able to apply the learned skills and knowledge. Because of that, health is also an important part of human capital (Bernard & Boucher, 2007).

Finally, social housing is a significant part of social services. With social housing, countries try to provide access to affordable, proper, inclusive, and sustainable housing (European Economic and Social Committee, 2024).



Figure 3: In-kind social services throughout the life course



Source: Authors' elaboration, based on Ciani and Fattacciu (2025)

Based on Ciani and Fattacciu (2025), social services and policies can be categorised in three different types (see Figure 3). First, the foundational services which are focussed on providing basic conditions necessary for human development and full participation in society. They play a role in early stages of life but have a lifelong impact. These services are for example ECEC, education, and health care. The second category of social services are the enabling services. These services help to facilitate big transitions in life, such as the school to work transition or becoming unemployed. Examples of enabling services are ALMP, vocational training, and work-life balance policies. The last type of social services are the protective services. They act as a safety net during times of dependency or crisis. These are for example long-term care services.

As stated in the theoretical framework, SWINS will primarily focus on care, health, and active labour market policies (Ciani & Fattacciu, 2025). We use these services as a basis for the literature review performed in this paper, but we also include education, since investing in education impacts different stages in life and several economic and social outcomes. Thus, the social services on which we focus in this paper are early childhood education and childcare (foundational service, during early childhood), education (foundational service, during childhood, adolescence, and young adulthood), active labour market policies (enabling service, during adulthood), and health care (foundational service, during the entire life-course). We will also describe how these social services can turn in to 'green social services' (see Section 4.6).

3.2. Identifying macro-regularities of social services and policies

It is obvious that social services and policies are designed and framed at the macro-level, but that their targets are at the micro-level. However, the influence of social services and policies on the behaviour and actions of individuals also lead to aggregate effects on the macro-level. In the theoretical framework of Ciani and Fattacciu (2025), this macro-micro-macro dynamic is captured using the Coleman's Boat framework (Coleman, 1994). First, at the macro-to-micro level, social services influence the environment of incentives, constraints, and expectations of individuals. Then, on the micro-to-micro level, these changes influence the behaviour of individuals, because the preferences, beliefs, and available resources of individuals change. Last, on the micro-to-macro level, all individual behaviours together result in new systematic patterns.

The focus here is on literature that researches the macro-regularities of social services and policies, where macro-regularities refer to consistent patterns observed in aggregate variables over time. This can be situated at the micro-to-macro level of the Coleman's boat, where individual reactions on investment in social services can lead to different macro-outcomes. As argued in the previous section, these outcomes are operationalised by different indicators of sustainable wellbeing, notably employment, income, economic growth, inequality, poverty, and carbon emissions.

When reviewing the literature that researches the relation between social services and indicators of sustainable wellbeing, there are several issues that need to be considered. First, as we will see, the reviewed research often finds significant correlations between social services and various indicators. However, correlation does not imply causation. This calls for caution when interpreting the results of the studies. Next, the time lag often associated with this type of research must also be considered. If investment in a certain social service increases, the effect may not be immediately visible but can have an impact on the medium or long term. The literature we cover in this paper, uses the distinction between short, medium, and long term and this is also incorporated in our literature overview. However, the time frames considered do not always correspond to each other and often differ between services. Furthermore, the studies we review often use public expenditure on a certain social service as a proxy for investment. It is important to note that this does not always reflect the quality or efficiency of the investments. In addition, only a limited number of studies examine an increase in investment in a particular service. However, the fact that a certain public service is already provided in a country can also be regarded as a kind of investment. Therefore, studies that consider the impact of providing a public service are also included in this research. It is important to take this difference into account when interpreting the results. Finally, we include studies that cover a single country over a specific time period as well as multi-country studies. However, as social services often differ across countries, international comparisons need to be done with caution. This study discusses mainly EU and OECD countries, since this is the main focus of the SWINS project. Studies from outside this geographical area fall outside the scope of this review.



4. Macro-regularities about investment in social services

We first research in Section 4.1 the relation between social services in general and sustainable wellbeing. After that, we examine all services specifically (Section 4.2-4.6), beginning with an overview of the theoretical expectations covered in the literature. These theoretical relations are illustrated graphically. Next, we discuss the empirical outcomes. Summary tables are also provided to give a clear overview of the reviewed literature. To measure the impact of the investment in all different services, we use the different indicators of sustainable wellbeing that were discussed earlier in this paper. The search of literature covered in this review has been driven by macro-level studies and outcomes. Last, in Section 4.6, we explain how the environmental dimension of sustainable wellbeing can be incorporated more extensively.

4.1. Relation between social services in general and sustainable wellbeing

Research shows that investments in social services have an overall positive effect on indicators of sustainable wellbeing. Ahn and Kim (2015) and Currie and Gahvari (2008) find in general that a higher share of social service spending within total social expenditure correlates with better economic and labour market outcomes. They find that there is more economic growth, less unemployment, and higher employment rates. This is because formal care services promote female labour force participation and investments in human capital increase productivity. On top of that, in-kind benefits give more incentives to actually work than cash transfers do because in-kind benefits support labour participation and avoid disincentives associated with passive income support (Ahn & Kim, 2015). The relation between social investment and employment is also confirmed by Bakker and Van Vliet (2022) and Nelson and Stephens (2011): expenditures on social services and social investment policies are positively associated with employment rates and overall employment levels. Alongside these indicators, the public debt-to-GDP ratio provides insights into economic resilience. However, the impact of social spending on this ratio is ambiguous: on the short term it could lead to higher debt levels (Chang et al., 2016; Smarandoiu, 2016), but due to the different positive outcomes on the long term, the debt ratio could reach a more sustainable level again (Ciarini et al., 2023).

As argued above, it is important to go beyond economic growth and economic performances, and also investigate social and environmental outcomes (Benczur et al., 2025). First, when considering the social outcomes of social service investments, the OECD states that social service investments have an important redistributive role. An increase in expenditure on total social services leads to an increase in income and a decrease in income inequality (Verbist et al., 2012). Because social services are mostly distributed uniformly across the entire population, public spending on these services significantly reduces income inequality (Marical et al., 2006; OECD, 2008, 2011a; Verbist

et al., 2012). Social expenditures do not only affect income inequality, but it also leads to lower health inequalities (Álvarez-Gálvez & Jaime-Castillo, 2018). Higher social expenditures, both cash transfers as in-kind benefits, are also related to lower poverty rates (Caminada et al., 2012).

The final aspect of sustainable wellbeing is the environment. Government expenditures can have different environmental effects. On the one hand, research shows that increasing social expenditures can have positive effects on economic activities, for example through education and ALMP. This in turn then leads to an increase in CO₂ emissions (Le & Ozturk, 2020). On the other hand, investments in social services lead to gains in income, and according to Ozyilmaz et al. (2023) increased income creates more environmental awareness, and thus a higher demand for a better environment. In addition, Adewuyi (2016) finds that public good expenditures, such as those on education and health care, can reduce emissions, because by enhancing human capital, consumption and production shift toward cleaner and less carbon-intensive activities. However, the resulting increase in income from expanded social spending may lead to higher emissions due to shifts in consumption patterns. But these studies investigate total government expenditures, and there is yet not much literature on the relation between social service expenditures and environmental outcomes.

These previous studies (Ahn & Kim, 2015; Álvarez-Gálvez & Jaime-Castillo, 2018; Bakker & Van Vliet, 2022; Caminada et al., 2012; Nelson & Stephens, 2011; Verbist et al., 2012) show that the costs of investing in social services are worth it with sustainable wellbeing on the longer term in mind. This is in contrast with the frequent framing of social expenditures as a compensatory cost. It shows that social services should be considered as a strategic social investment (Ciani & Fattaciu, 2025). Therefore, strengthening and improving social services can be used as a tactical method to support wellbeing throughout life.

Although social service investments can lead to a decrease in income inequality, it is relevant to note that social investments can be associated with the so-called Matthew effect, which means that policies may not always reach the most vulnerable or needy. Bonoli et al. (2017) argue that if social services only benefit the middle- and higher-income groups, the gap between rich and poor may increase, because the less advantaged people (such as the unemployed and lower-educated) cannot benefit from the social services in the same way as the advantaged people can. Consequentially, welfare states need to both invest in social services as in traditional forms of social protection (Cantillon & Van Lancker, 2013). Investment in social services can reduce poverty but Esping-Andersen (2002a) states that these policies are only efficient if there is also focus on the maintenance of income. Therefore, social services can have an equalising effect, which is further enhanced when implemented alongside other redistributive policies, such as cash transfers (Sakamoto, 2023).



4.2. Early childhood education and childcare (ECEC)

Since the European Council adopted the Barcelona objectives in 2002, the investment in early childhood education and childcare has become more prominent on the European Agenda. These objectives included certain targets for childcare by 2010: at least 33% of children under age three and 90% of children between age three and primary school age should participate in ECEC (European Council, 2002). With these targets, countries were encouraged to invest more in early childcare and education. Despite these efforts, large differences between member states remained, which led the European Council to formulate in 2022 new recommendations that should be reached by 2030. These targets follow the logic of the Barcelona targets of 2002: at least 45% of children below the age of three and at least 96% of children between the age of three and the starting age for compulsory primary education should participate in ECEC (European Council, 2022). As mentioned before, the European Pillar of Social Rights focuses on equal opportunities and access to the labour market, fair working conditions, and social protection and inclusion (European Commission, 2017). One part within the social protection and inclusion goal, is the provision of ECEC: children have the right to affordable and high-quality ECEC. The revision of the Barcelona targets is one way in how they want to achieve this goal.

In this section, we first bring together the theoretical arguments that underpin these investments in ECEC (see Figure 4), and then collect empirical evidence for these arguments.

4.2.1. Theory behind investing in ECEC

The main goal of providing ECEC is, first and foremost, to encourage parental, and particularly female, participation in the labour market. Thanks to the availability of education and care, parents, and particularly women, can be active on the labour market (Akgündüz et al., 2015). Consequentially, investment in ECEC might impact several macroeconomic outcomes, such as increased earnings and improved labour market outcomes. Both the increase in the employment of parents and the earnings of parents, can result in a reduction in (child) poverty (Van Lancker, 2013).

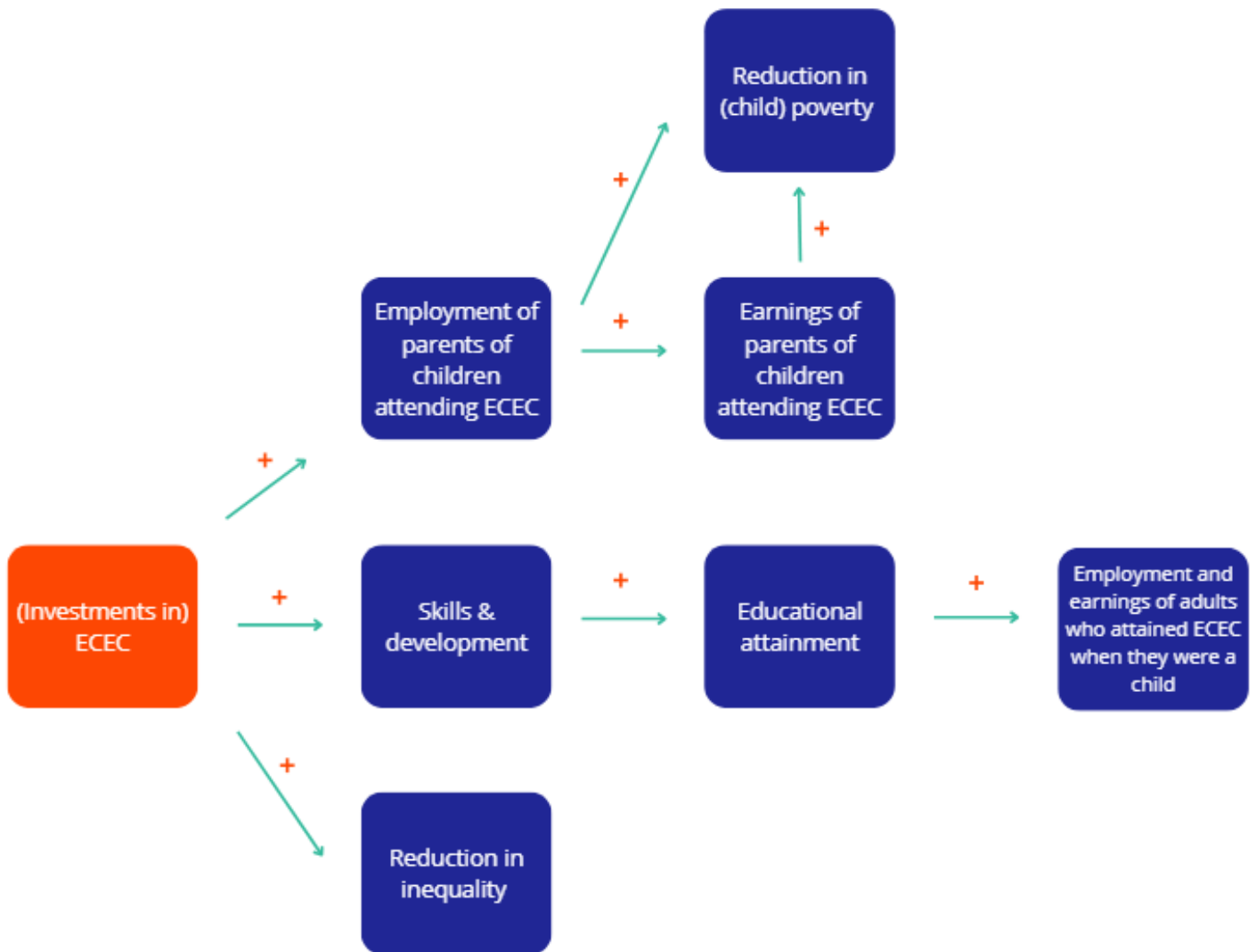
In addition, since the research of Heckman (2006) provided evidence that investing in a child's early years yields the highest economic returns compared to any other stage of childhood, the focus of ECEC has shifted to child outcomes and the associated short- and long-term effects of ECEC participation. In recent years there has been new evidence that shows that benefits of interventions targeting young children are no greater than those targeting older age groups (Rea & Burton, 2020). However, the economic dimension is not the only important objective of providing ECEC. For example, in these early years, children develop and learn different cognitive and socio-emotional skills. Kvist (2013) argues that policies targeting later stages in life rely on these skills learned during those early years of life. Children with greater cognitive and non-cognitive skills are more effective in later life acquiring higher educational achievements and a better position on the labour market. The development of socio-emotional skills also lead to higher completion of high school and enrolment in university (Sorrenti et al., 2024). This is also one of the arguments in the reply of Heckman, who states that the skills learned in the early years are necessary for acquiring skills later

in life (Heckman, 2020). These higher educational achievements and labour market positions can in turn then lead to higher employment and earning levels of adults who participated in ECEC.

Investments in ECEC can also influence the social performance of welfare states. As mentioned before, they can lead to lower (child) poverty and higher educational attainment, but also to lower inequality and lower social exclusion. When ECEC investments are targeted at all parts of the population, this service is also relevant for mitigating inequalities in early life. This is because inequalities in childhood can lead to an unequal accumulation of human capital which is the main reason of unequal opportunities in the labour market and later in life (Van Lancker, 2013). Therefore, the earlier efforts are made to equalise and maintain cognitive skills, the smaller the inequality between children from different socio-economic groups will be (Cunha & Heckman, 2007). Investing in all children equally is also beneficial for the society at large because sustainability of the welfare state relies on it (Cantillon & Van Lancker, 2013).



Figure 4: Theoretical expectations about the effect of investment in ECEC on different indicators of sustainable wellbeing¹



¹ Research also shows that investing ECEC has a positive impact on (adult) health outcomes (Campbell et al., 2014; Conti & Heckman, 2014). As these studies mainly concern specific childcare programmes in the United States, they are beyond the scope of this literature review. However, as will become clear in Section 4.5, investing in health and healthcare is also important when governments want to achieve certain macro-level outcomes.

When studying the effects of ECEC on different indicators, it is important to know in what time frame these effects are measured. When there is an increase in ECEC expenditures, on the short term this can lead to higher maternal employment, higher parental earnings, and with that lower inequality on the short term. As investments in ECEC may also lead to better development and higher skills of the children, this may influence their employment status and earnings in the long run. Both effects are equally important to study because they have an impact on the sustainable wellbeing of the parents of the children participating now and on the sustainable wellbeing of the children when they are older.

The different effects of investments in ECEC depend however on several factors (Ruhm & Waldfogel, 2012). First, the extent to which care facilities affect parents' employment and income can vary across countries. The quality and type of ECEC may also affect the impact. Research shows that the beneficial effects of ECEC depend largely on the quality of the provision (Vandenbroeck, 2015). In addition, as mentioned before, the age of the children when they enrol in ECEC also has a major influence on effectiveness. Finally, a distinction can also be made between universal and targeted ECEC, which both have different impacts on the social and economic outcomes. Because of these different factors, the effects of ECEC can be different across countries (Melhuish, 2014). This should be taken in consideration while evaluating the effects of investments in ECEC.

4.2.2. Existing empirical evidence

There is a large body of research on the relation between (investment in) ECEC and different macro-indicators of sustainable wellbeing. This is mainly researched in EU countries, but this review also discusses studies of several OECD countries.

Research points out that investments in ECEC results in higher cognitive and socio-emotional skills and better development in younger years (Kulic et al., 2019; Sorrenti et al., 2024). This in turn leads to better educational outcomes of the children participating in ECEC: higher educational attainment and more years of schooling (Van Huizen & Plantenga, 2018).² However, these effects can be observed at the individual level and are beyond the scope of this research. Nevertheless, they play an important role in macro-level outcomes, for example in achieving higher long-term employment levels.

As described before, investing in ECEC can have a different impact on different indicators of sustainable wellbeing. First, for the economic indicators, literature shows that there is a positive effect of investing in ECEC on employment levels of the parents of the children attending ECEC (Bakker & Van Vliet, 2022; Maestripieri et al., 2023; Narazani et al., 2025). These effects are measured both in the short to medium run as in the long run. This corresponds to the previously discussed theory. On top of that, providing ECEC is also beneficial for the employment of mothers. This relation has been discussed very extensively in the literature: better-provided ECEC results in a higher female employment rate and more hours worked for women (Misra et al., 2011; Narazani

² In the United States, there is a lot of research about the impact of specific ECEC programs (for example: Currie (2001); McCoy et al. (2017); Von Suchodoletz et al. (2023)). These studies show that specific early childhood education programs have significant benefits, especially for disadvantaged children. These studies focus on the US and mostly on the impact on cognitive development and educational outcomes and are beyond the scope of this review. However, because educational outcomes of individuals are relevant for economic and social performances of countries, it is relevant to mention this.



et al., 2025; Olivetti & Petrongolo, 2017; Plavgo & Hemerijck, 2021; Van Belle, 2016; Van Huizen & Plantenga, 2018). Maestriperi et al. (2023) also found that part time work for mothers (involuntary part time work as well) decreases when there is an increase in ECEC coverage. Due to the increase in female labour market participation, the literature shows that this has medium- to long-term gender effects. Chłoń-Domińczak et al. (2024) found that, due to greater coverage and intensity of formal care, the gender employment gap was reduced. The gender pay gap also narrows, albeit to a lesser extent. More and better ECEC also results in a lower amount of single breadwinner families (Plavgo & Hemerijck, 2021).

Next, investment in ECEC has an impact on earnings, the distribution of earnings, and the earnings gap. On the long term, literature shows that adults who attained ECEC when they were younger, will have higher earnings (Spieß, 2017; Van Belle, 2016; Vandebroek et al., 2018). This can be explained by the fact that attending (high quality) ECEC leads to better cognitive skills and development. This in turn results in better educational outcomes, and better labour market outcomes because of higher employability (Vandebroek et al., 2018). In the long run, the distribution of earnings will also be more equal: children from the lower and middle part of the income distribution will gain in the future more earnings relative to children from high income families (Havnes & Mogstad, 2015). Research also shows that women's earnings can increase as a result of ECEC provision (Misra et al., 2011), and that consequently, the women's share in households earnings increases (Nieuwenhuis et al., 2019). Furthermore, higher female employment leads to a smaller gender pay gap (Olivetti & Petrongolo, 2017), and a lower Gini coefficient of earnings (Havnes & Mogstad, 2015).

Investment in ECEC also influences social indicators of sustainable wellbeing. First, existing research shows that on the short term, income inequality can be reduced by investing in ECEC (Vaalavuo, 2011). This effect was also found by Matsaganis and Verbist (2009), but the decrease of inequality was rather modest. Nieuwenhuis et al. (2019) also state that expenditures on childcare have a direct positive effect on reducing inequality, and that this can be explained by the increase in women's earnings.

According to the reviewed studies, there is considerable consensus on the relation between the provision of ECEC and employment, earnings, and inequality. However, the effects on poverty are not so clear. Matsaganis and Verbist (2009) find mixed effects on overall poverty and Hufkens et al. (2020) state that poverty reduction is only significant when increased childcare is paired with increased maternal employment. However, according to Plavgo and Hemerijck (2021), higher ECEC investment can lead to lower child poverty, especially when this is combined with more flexible work. These mixed results call for further research on the precise character of this relation.

Lastly, there are some ECEC effects on different outcomes that are not the indicators researched in this paper, but which can influence the sustainable wellbeing of individuals and countries. For example, research shows that an increase in ECEC expenditures can lead to an increase in macro-economic productivity in the long run (Égert et al., 2023). Next, both mental and physical health, and wellbeing can also be improved, and this effect holds for both the short run and the long run (Vandebroek et al., 2018). Lastly, investments in ECEC lead to larger social cohesion, and larger social mobility in the long run (Vandebroek et al., 2018).

All the literature mentioned above, is summarized in Table 2. Annex 1 gives a more extensive overview of the reviewed studies. In addition to these studies, there are also some systematic literature reviews and meta-analysis on the relation between ECEC and indicators of sustainable wellbeing (Dietrichson et al., 2020; Kulic et al., 2019; Schmutz, 2024; Van Huizen & Plantenga, 2018). These studies recap the effects on employment, earnings, and inequality but the focus is mostly on the educational outcomes. All these reviews state that low socio-economic status children benefit in theory more from (investments in) ECEC. This is an important finding to keep in mind when designing ECEC policies. However, it is important to note that in practice the Matthew effect can be observed in the provision of ECEC. This is because children from high-income households are more enrolled in childcare than children from low-income households (Van Lancker, 2023). This means that children who would benefit the most from high-quality childcare are the most likely to be excluded. Consequently, this may diminish opportunities to reduce inequality early in life and cause the Matthew effect to play an increasing role throughout the life-course.



Table 2: Overview of previous research on the relation between ECEC and macro-indicators of sustainable wellbeing

Economic indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of ECEC	Macro-indicator	Time frame	Results
van Belle	2016	16 EU member states + UK	Public, private, or voluntary preschool childcare provision	Labour market outcomes	MT & LT ³	ECEC improves cognitive and language skills, benefits persist into adolescence and adulthood (higher earnings) (LT); ECEC increases female labour force participation (MT)
Havnes & Mogstad	2015	1 European country	Publicly subsidised childcare programs	Adult earnings, earnings distribution & earnings inequality	LT	Positive effects on earnings distribution for lower and middle parts of income distribution, negative effects for upper part; children from low-income families gained most earnings, children from high-income families experienced loss; reform reduced Gini coefficient of earnings
Chłoń-Domińczak et al.	2024	27 EU member states	Formal childcare provision	Gender employment gap & gender pay gap	MT to LT	Greater coverage and intensity of formal care for children under 3: lower gender employment gaps, for children aged 3–5: formal care intensity is linked to reduced GEG, especially for prime-aged women; in countries with already high ECEC coverage: further increases show diminishing returns

³ Because the time frames considered in the literature vary from study to study, the specific time frame of each study is explained in more detail in the Annex.

Author(s)	Year	Country	Definition of ECEC	Macro-indicator	Time frame	Results
Narazani et al.	2025	8 EU member states	Formal childcare for children under 3 years	Labour supply of mothers, employment effects & working hours	ST	Increase in formal care: increase in labour supply and increase in employment, and increase in working hours for mothers
Maestriperi et al.	2023	2 EU member states	Coverage rate of publicly provided childcare services for children aged 0–2 years	Female employment rate, inactivity rate, part-time employment rate & involuntary part-time employment rate	MT	Public ECEC investment is positively associated with higher employment rates, lower inactivity rates, lower part-time and involuntary part-time rates; stronger positive effects for women without degrees; Increase in ECEC: decrease in part-time work for mothers, involuntary part-time work also decreases, especially in Spain
Égert et al.	2023	25 OECD countries	ECEC as public service	Macroeconomic productivity	LT	An increase in ECEC participation can raise long-run productivity
Plavgo & Hemerijck	2021	34 high-income OECD countries	Investment in ECEC	Employment outcomes	ST to MT	Higher ECEC enrolment and spending leads to lower share of single-breadwinner families and higher maternal employment
Olivetti & Petrongolo	2017	30 high-income OECD countries	Public spending on childcare and preschool	Female employment rate, gender employment gap & gender earnings gap,	MT	Strongest positive association with higher female employment, lower gender employment gaps and earning gaps
Nieuwenhuis, Need, van der Kolk	2019	18 OECD countries	Public childcare expenditures	Contribution of women's earnings to household inequality, women's share in household earnings, earnings inequality among women,	MT to LT	Women's earnings reduce inequality among coupled households; women's earnings are positively associated with higher FLFP, greater women's share in household earnings, lower earnings inequality among women, greater reduction in household inequality;



Author(s)	Year	Country	Definition of ECEC	Macro-indicator	Time frame	Results
				correlation between spouses' earnings & female labour force participation (FLFP)		childcare had a direct positive effect on reducing inequality via women's earnings
Spieß	2017	7 countries with universal ECEC systems	Universal ECEC services that are publicly funded	Earnings	LT	Increased earnings for adults who attained ECEC when they were younger
Misra, Budig, Boeckmann	2011	22 OECD countries + RU	Publicly supported formal childcare	Women's employment hours & women's wages	MT	Public childcare for children aged 0–2 is strongly associated with more hours worked & higher wages, childcare for ages 3–5 shows weaker associations, possibly due to limited hours or educational focus
Bakker & van Vliet	2022	26 OECD countries	Early childhood policies	Employment rate	ST	Early childhood policies: no significant short-term association with employment, possibly due to already high female labour participation and reduced labour supply elasticity
Vandenbroeck, Lenaerts & Beblavy	2018	27 EU member states + 4 European countries	Provision of ECEC before primary and compulsory education	Earnings, employability & workforce participation	ST & LT	Increased workforce participation (ST), higher future earnings for children (LT), improved employability (LT)

Social indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of ECEC	Macro-indicator	Time frame	Results
Vaalavuo	2011	14 European countries	All services provided for children below school age	Income inequality	ST	Provision of ECEC leads to a reduction in inequality
Hufkens et al.	2020	5 EU member states	Formal subsidised childcare services	Child poverty	ST	Poverty reduction is significant only when increased childcare is paired with increased maternal employment; targeting poor households for childcare expansion and employment yields the largest poverty reductions
van Belle	2016	16 EU member states + UK	Public, private or voluntary preschool childcare provision	Social outcomes	ST & LT	ECEC reduces poverty and inequality
Matsaganis & Verbist	2009	5 EU member states	Publicly funded childcare	Income inequality & poverty	ST	Modest reduction in inequality, mixed effects on overall poverty
Vandenbroeck, Lenaerts & Beblavy	2018	27 EU member states + 4 European countries	Provision of ECEC before primary and compulsory education	Poverty, social cohesion, health & wellbeing	ST & LT	Reduction in intergenerational poverty (LT), greater social cohesion (LT); better health outcomes (ST & LT)
Plavgo & Hemerijck	2021	34 high-income OECD countries	Investment in ECEC	Poverty outcomes	ST to MT	Higher ECEC investment and flexible work leads to lower child poverty



4.3. Education

Education is a social service that plays a significant role in people's lives. Because of this, education is included in the European Pillar of Social Rights as well. The 20 key principles of EPSR are also aimed at building fairer and well-functioning labour markets and good working welfare systems that benefit everyone (European Commission, 2017). One key principle is focused on education, training, and lifelong learning: everyone has the right to inclusive and quality education. One related action to this principle is the European Education Area (EEA). This initiative aims to help EU member states develop more resilient and inclusive education and training systems. The European Commission states that education provides the foundation for personal development, employment and active, responsible participation in society (European Commission, 2024). Education can be divided into three different types: primary, secondary, and tertiary education. On average, primary education starts between the ages of 5 and 7, secondary education at around age 12, and tertiary education after the age of 18. In most EU countries, the non-tertiary education is compulsory.

This section begins by outlining the theoretical foundations that justify investments in education (see Figure 5), followed by a review of empirical evidence supporting these claims.

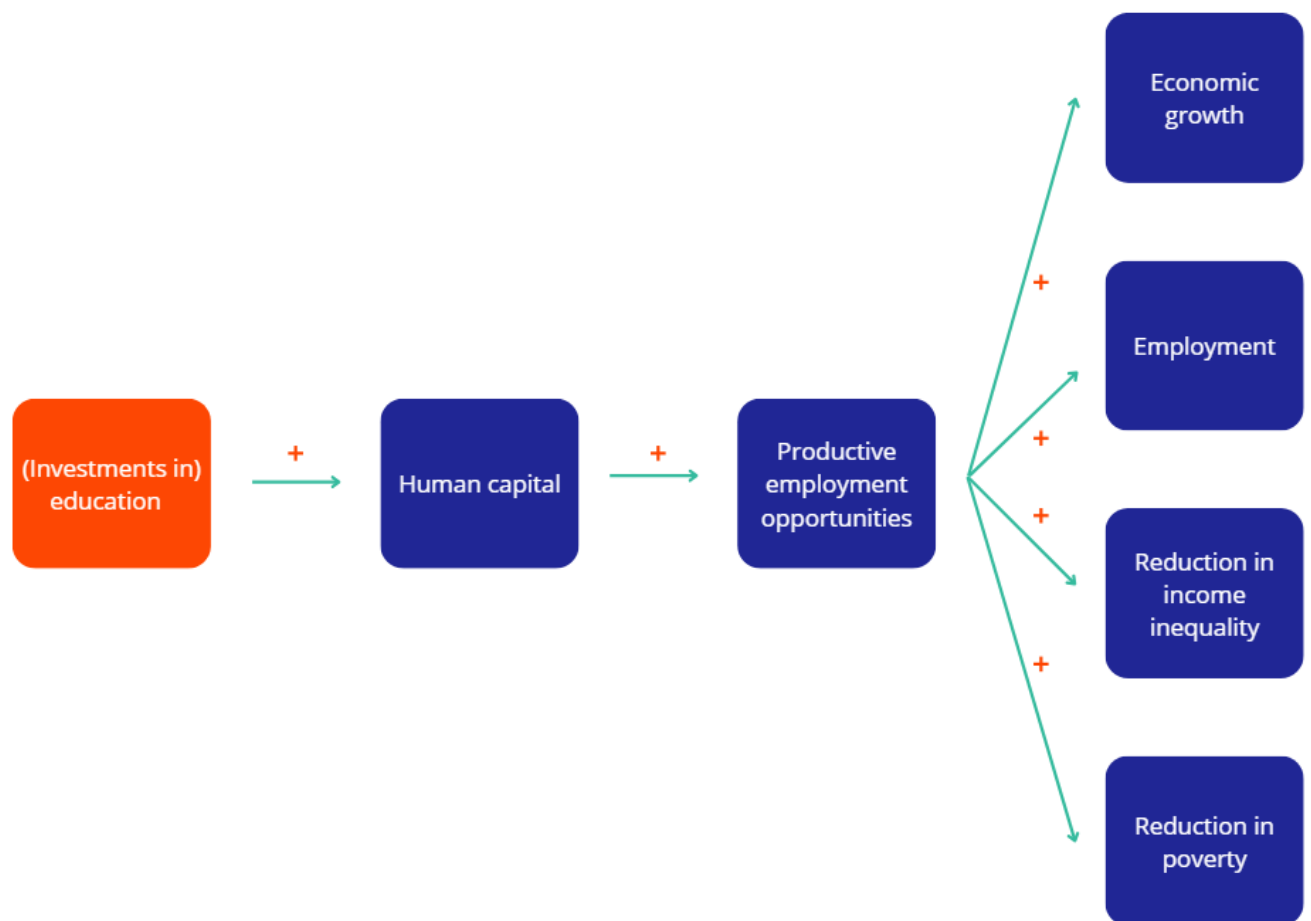
4.3.1. Theory behind investing in education

When researching investment in education as a social service and its effects, the literature often refers to the creation of human capital through such investment (Becker, 1964; Esping-Andersen, 2002b). Human capital refers to 'the knowledge, skills, competences, and attributes that allow people to contribute to their personal and social wellbeing, as well as that of their countries' (Keeley, 2007, p. 3), and is measured by the educational level of the labour force. The effects of investments in education are most evident in the long term: the creation of human capital involves the use of current resources, with the aim of achieving future benefits (Psacharopoulos, 2006).

As individuals acquire more skills and knowledge through education, their productive capabilities improve. This, in turn, leads to increased productivity and a higher skilled workforce, characterised by greater employability. Consequentially, well educated people have higher chances of finding a job (Morel et al., 2012). At the macro-level, this influences economic and social outcomes. Higher productivity of the labour force increases economic productivity and creates productive employment opportunities for society (Hemerijck et al., 2022). This results in higher economic growth, which is beneficial for the economy as a whole (Ozaydin & Dagdemir, 2023). On the other hand, education can also play an important role in reducing income inequality and poverty (Sylwester, 2002). This can be explained by the fact that, with better education, workers are more qualified and have more employment opportunities. Consequently, they can negotiate higher levels of remuneration, which can lead to lower wage differences and a decrease in income inequality (Gregorio & Lee, 2002). Research also shows that investment in education is beneficial for intergenerational mobility (Björklund & Jäntti, 1997; Checchi et al., 1999). By investing in education, access to quality schooling and incentives to pursue higher education increase. This then leads to higher chances of upward movement across generations. Making sure that everyone can attend education is also important to

promote social inclusion, since poor education has become one of the most important predictors of social exclusion (Vaalavuo, 2011).

Figure 5: Theoretical expectations about the effect of investment in education on different indicators of sustainable wellbeing



Source: Authors' elaboration

It is important to note that the effects differ for the different types of education. The equalising effects mentioned before, often only hold for primary and secondary education. Because primary and secondary education are compulsory, education is considered a fundamental element in producing equal opportunities for the rich and the poor, as well as promoting social mobility (Vaalavuo, 2011). However, the quality of the provided education plays an important role in how equalising the effect is. In contrast to primary and secondary education, attendance at tertiary education institutions often depends on the socio-economic background of the student, such as the income or educational level of their parents (Marical et al., 2006). This means that this type of education does not have the same equalising effect in the beginning because it often only benefits the better-off more. This can again be considered as the Matthew effect. However, important to note is that publicly provided higher



education remains one of the most important factors in upward social mobility (OECD, 2018). Therefore, targeted educational systems must form a key part of the investment in educational services.

4.3.2. Existing empirical evidence

We have reviewed the existing literature about the relation between investment in education and different macro-indicators of sustainable wellbeing. Again, most of the literature contains studies about EU or OECD countries. Table 3 summarizes the reviewed literature. A more extensive overview of all the reviewed studies can be found in Annex 2.

First, we can conclude that investing in all three types of education results in an increase in employment on the long term (Grimaccia & Lima, 2013; Ozaydin & Dagdemir, 2023). According to Bakker and Van Vliet (2022) the effect on the short term is not significant. This can be explained because of the creation of human capital, which increases the employability of future workers and therefore employment levels when they enter the labour market. When investigating the impact on unemployment, the effects can be different on the short term. Volkan (2021) finds that an increase in education expenditures can increase unemployment levels slightly. However, Manafi and Marinescu (2013) state that more education expenditures lead to a decrease in unemployment levels in the short run. And also in the long run can more spending on education result in lower unemployment levels (Volkan, 2021). The potential small increase in unemployment in the short run may be caused by a temporary mismatch in the labour market. By increasing school spending, potential workers stay away from the labour market for longer. In the long run, however, unemployment decreases when they do enter the labour market. Research of Manafi and Marinescu (2013) also shows that investment in education leads to higher average wages. In addition, the OECD states that a well expanded education system is also very important for future earnings of people that attended education (OECD, 2023). In addition, public education expenditures are also important to lower earnings inequality (Herrington, 2015). In the long run, more public expenditures on education also results in more economic growth (Kim & Ahn, 2020) and an increase in macroeconomic productivity (Égert et al., 2023).

For the social indicators of sustainable wellbeing, we studied again the impact of investment in education on income inequality and poverty. For inequality, the effects are not uniform. All studies but one of the studies included in this review find in the long term that disposable income inequality decreases when general education expenditures increase (Huber et al., 2020; Jianu, 2020; Sakamoto, 2021). The reason for this is that more spending on education can equalise opportunities and improve labour market outcomes. In the short run however, educational expansion can lead to an increase of inequality due to unequal access or delayed effects (Celikay & Sengur, 2016). When looking at market income inequality, there is no evidence that expenditures on education can reduce this inequality (Sakamoto, 2021). When the distinction is made between spending on primary and secondary or tertiary education, the effects are different. Literature shows that compulsory education spending leads to lower inequality in the short run (Callan et al., 2008; Marical et al., 2006; Vaalavuo, 2011). This can be explained by the fact that primary and secondary education are pro-poor: lower-income households benefit more proportionally from education provision. This is in contrast with

tertiary education, which is often pro-rich (Vaalavuo, 2011), and reduces inequality in the short run only marginally (Callan et al., 2008).

Next, the literature shows that investing in education can reduce poverty in both the short and long term (Callan et al., 2008; Sakamoto, 2023; Van Vliet & Wang, 2015). In the long run, this effect is again mostly for investments in primary and secondary education: poverty can be reduced by expenditures on compulsory education, and tertiary education spending has no significant or even a slightly positive association with poverty (Hidalgo-Hidalgo & Iturbe-Ormaetxe, 2018).

Although we aim to integrate the environmental aspect of sustainable wellbeing in our analysis, there is so far not much literature about the relation between investment in education and carbon emissions in the EU. However, there are some studies researching the effect of education on the environment in other countries, which may give insight in how mechanisms can function for this type of service. For example, in Pakistan Abbass et al. (2022) found that government spending in public sectors, such as education, have a diminishing effect on CO₂ emissions. This is explained by the fact that in emerging economies, such as Pakistan, they cannot sufficiently use their human resources. By investing in human capital, industries can hire higher educated workers who can implement more green production methods. On the long term, this in turn then leads to a decrease of CO₂ emissions. Ozyilmaz et al. (2023) also researched the relation between education expenditures and CO₂ emissions. They found a decline in CO₂ emissions, but this effect was not significant.



Table 3: Overview of previous research on the relation between education and macro-indicators of sustainable wellbeing

Economic indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of education	Macro-indicator	Time frame	Results
Grimaccia & Lima	2013	EU, focus on IT	All levels of education	Employment	LT	Positive relationship between public spending on education and employment
Kim & Ahn	2020	15 OECD countries	All levels of education	Economic growth	MT & LT	Public spending on education has positive medium- and long-term effects on economic growth
Manafi & Marinescu	2012	EU countries	All levels of education	Unemployment rate, GDP, lifelong learning patterns & medium wage levels	ST	Investment in education (and training) is positively associated with lower unemployment, higher GDP, greater participation in lifelong learning, higher average wages
Özaydın & Dağdemir	2023	1 European country	All levels of education	Employment level	LT	An increase in education expenditures is associated with increase in employment
Volkan	2021	27 EU member countries	All levels of education	Unemployment level	ST & LT	Education spending increases unemployment slightly (ST); an increase in education spending reduces unemployment (LT)

Author(s)	Year	Country	Definition of education	Macro-indicator	Time frame	Results
Égert et al.	2023	25 OECD countries	Primary and secondary education	Macroeconomic productivity	LT	Education leads to an increase in productivity in the long run
Bakker & van Vliet	2022	26 OECD countries	All levels of education	Employment rate	ST	Education expenditures have no significant short-term effects on the employment rate; long-term effects likely but hard to capture.
OECD	2023	OECD countries	All levels of education, but also measured separately	Earnings	LT	Providing better and more education can lead to higher earnings for adults who attended education when they were younger
Herrington	2015	NO & US	All levels of education	Earnings inequality	LT	Public education spending account for about one-third of differences in earnings inequality. Adding early childhood education more than doubles the impact



Social indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of education	Macro-indicator	Time frame	Results
Huber, Gunderson & Stephens	2020	22 affluent democracies	All levels of education	Income inequality	LT	Public education spending reduces inequality and raises skills, especially at the lower end
Callan, Smeeding & Tsakloglou	2008	7 European countries	All levels of education, but also measured separately	Inequality	ST	Tertiary education provision alone reduce inequality only marginally; all education provision combined reduce inequality substantially Public education provision significantly reduces inequality and poverty; lower-income households benefit more proportionally from education provision; most inequality reduction is due to compulsory education
Sakamoto	2021	18 OECD countries	All levels of education	Market income inequality & disposable income inequality	LT	Education spending reduces disposable income inequality, no stable evidence that education reduce market income inequality
Vaalavuo	2011	14 European countries	All levels of education, measured separately	Income inequality	ST	Non-tertiary education: reduction in inequality; tertiary education: often pro-rich; redistributive effect depends heavily on imputation method; basic education is pro-poor, tertiary education benefits higher-

Author(s)	Year	Country	Definition of education	Macro-indicator	Time frame	Results
						income groups more, except in countries with more equitable access
Marical, d'Ercole, Vaalavuo & Verbist	2006	28 OECD countries	All levels of education, but also measured separately	Income inequality	ST	Education services reduce inequality mainly through compulsory education; tertiary education can be regressive
Sánchez & Pérez-Corral	2018	28 EU member states	All levels of education	Income inequality	LT	Education spending is not significantly related to inequality
van Vliet & Wang	2015	15 European countries	Primary and secondary education	Poverty & income inequality	ST	Expenditures on education reduce poverty
Hidalgo-Hidalgo & Iturbe-Ormaetxe	2018	16 European countries	All levels of education, but also measured separately	Adult poverty status	LT	Public expenditure on primary and secondary education significantly reduces adult poverty & tertiary education spending has no significant or even a slightly positive association with poverty; strong poverty-reducing effects of education spending are concentrated among individuals from low-educated families, for individuals from highly educated families, education spending has no effect or may even increase poverty risk
Sakamoto	2024	18 OECD countries	All levels of education	Poverty, inequality & poverty gap	ST, MT, LT	Education spending is associated with lower disposable income poverty and inequality and lower poverty gap



Author(s)	Year	Country	Definition of education	Macro-indicator	Time frame	Results
Celikay & Şengür	2016	28 EU member states + IS, MK, TR	All levels of education	Income inequality	ST & LT	An increase in education expenditure raises the Gini coefficient in the short term and reduces the Gini coefficient in the long term
Jianu	2018	28 EU member states	All levels of education	Income inequality	LT	Education spending had a stronger negative effect on inequality than health spending An increase in education spending leads to a decrease in income inequality

4.4. Active labour market policies

Active labour market policies are an important part of social services. As with ECEC and education, ALMP are also included in the European Pillar of Social Rights. The rationale behind investing in ALMP is that the unemployed have the right to personalised, continuous, and consistent support (European Commission, 2017). The focus is primarily on policies to combat long-term unemployment because its effects are more severe for the individuals themselves and the society at large. We again first summarize theoretical expectations (see Figure 6), and the empirical evidence on the macro-regularities. We also pay attention to the literature on military conscription, given recent geopolitical developments (see Box 1).

4.4.1. Theory behind investment in active labour market policies

Active labour market policies can be divided into different types of policies and can have various effects on different types of outcomes (see also Figure 6). First, there are training and retraining programmes. The goal here is to boost the employability of the unemployed by increasing human capital accumulation (Fredriksson, 2021). Next, there are the public employment services, to help with the matching between jobseekers and employers (Fredriksson, 2021). An important part of public employment services is providing information to employers and jobseekers on labour market trends, skill requirements, and job opportunities (Neier et al., 2024). The next policy as a part of the ALMP, is direct job creation and provision, often in public work sectors. The idea behind this is to ensure that disadvantaged individuals remain in contact with the labour market as much as possible and to prevent the loss of human capital during periods of unemployment (Filges et al., 2015). Next, there are also private sector schemes, where governments try to give incentives to employers to hire unemployed people by giving for example wage subsidies. Another part of private sector schemes is giving start-up subsidies (Vooren et al., 2019). Last, there is a category that covers different services and sanctions, focussing on all measures designed to increase the efficiency of job searches, such as counselling and monitoring, assistance with job searches, and sanctions for noncompliance (Kluve, 2010).

The goal of all these different types of policies is to enhance the labour market prospects of unemployed people by increasing their productivity, and therefore their employability (Vooren et al., 2019). This in turn then leads to positive macro-effects, such as higher employment levels. According to Estevão (2007), there are different mechanisms through which ALMP can increase employment. For example, there is better matching between job vacancies and unemployed workers, and the unemployed stay attached to the labour market during longer periods of inactivity. The focus of ALMP is thus mainly on getting the unemployed back on the labour market and not so much on redistribution (Fredriksson, 2021). However, this can be an indirect effect of investing in ALMP. The same holds for female labour force participation: this is not the primary goal of ALMP, but because women are often more inactive, ALMP can result in higher female employment (Caliendo & Künn, 2015).

As with the other categories of social services, the effects of ALMP differ in the short and long term. Furthermore, the effects of different types of ALMP vary. For example, training and retraining



programs try to increase human capital formation, with the aim to increase employment. However, in the short run, this effect is not immediately captured because of the so called lock-in effect: during training programmes, participants are less active in the job search process (Vooren et al., 2019).

Figure 6: Theoretical expectations about the effect of investment in ALMP on different indicators of sustainable wellbeing



Source: Authors' elaboration

4.4.2. Existing empirical evidence

We review the relation between investing in ALMP and the different indicators of sustainable wellbeing. Table 4 summarises the reviewed literature, and Annex 3 gives a more detailed overview of all these studies.

As mentioned before, the main goal of ALMP is to increase productivity and employability of the unemployed, and with that the overall employment level. As a result, existing literature mostly researches the relation between (investment in) ALMP and employment rates or unemployment levels.

When investigating the effects of overall ALM policies, we can conclude that investing in ALMP indeed has a positive effect on employment (Bradley & Stephens, 2007; Bruno & Rovelli, 2010). ALMP also reduces unemployment levels (Martin, 2015), but Benda et al. (2020) state that the effectiveness often depends on the interaction with other labour market institutions. These studies demonstrate that ALMP are important for employment levels. Consequentially, there are literature reviews and meta-analyses that give an overview of the relation between ALMP and economic performances of countries. For example, Vooren et al. (2019) examine 137 studies about ALMP and state that the effectiveness depends strongly on the type of ALMP. The study of Card et al. (2018) reviews over 200 studies and shows that the average impact of ALMP on employment is small in the short term, but that it becomes more positive after a period of time. In addition, the long-term benefits are most substantial when the type of ALMP is mostly focused on the creation of human capital. The overall effects of ALMP are more positive for women and the long-term unemployed.

As becomes clear, the effects of ALMP are different both on the short term and the long term and vary for different types of policies. First, we discuss the effect of training policies. On the short term, the effects of training programs on employment levels are not clear. According to Bakker and Van Vliet (2022), training programs ensure that employment levels increase. On the other hand, Crépon and Van Den Berg (2016) find mixed short-term results for employment rates. This can be explained by the lock-in effect mentioned before. Also, when looking at the participants of the training programs, the increase in their employment probability is only modest (Kluge, 2010). In the long run, training programs have positive effects on employment levels (Crépon & Van Den Berg, 2016). For unemployment levels, Fredriksson (2021) only finds a decrease in the short run, but not in the long run.

Next, public employment services reduce unemployment levels both on the short and long run (Fredriksson, 2021). When looking at the impact of public employment services on low-educated workers' employment, we see that the effect is positive on the short and the long run (Abrassart, 2015). Further, direct job creation does not yield the expected positive effects. In the short and long term, it has no significant impact on unemployment. Fredriksson (2021) also researched the interaction between several ALMP. For example, training programs are more effective when the spending on public employment services is high. The negative effects of direct job creation are also mitigated by more public employment service spendings.

Next, for the different private sector schemes, literature shows that subsidised employment leads to a decrease in unemployment level, both on the short and long term (Fredriksson, 2021). Subsidised employment has also a positive impact on employment, but this effect is only during the subsidy



period (Crépon & Van Den Berg, 2016). Different private sector incentives are also relevant in increasing the employment probability (Kluve, 2010).

Last, ALMP also includes services, like job search assistance, and sanctions. We see that job search assistance is relevant for increasing the overall employment rate on the short and long term (Bakker & Van Vliet, 2022; Crépon & Van Den Berg, 2016), and for increasing the employment probability of unemployed workers in the short run (Kluve, 2010).

As previously described, the main objective of ALMP is not redistribution. As a result, the literature about the effect of ALMP on inequality and poverty is rather limited. According to Sakamoto (2021), ALMP spending could decrease income inequality. For poverty, Van Vliet and Wang (2015) state that poverty will increase when spending on ALMP increases, probably because of less generous passive benefits. However, when looking at poverty among low-educated workers, ALMP can have positive effects. As previous theory also states, social services can be equalising when they are implemented in combination with other redistributive policies (Esping-Andersen, 2002a). This is also confirmed by research about ALMP: ALMP reduce poverty and inequality only when supported by redistributive institution.

Box 1: Military conscription as universal basic job

In the current (geo-)political context, it may be useful to consider the idea of military conscription as a form of universal basic job within the direct job creation policy. It is important to assess how conscription and military service affect employment, earnings, skills, educational performance, and health, since the debate about reintroducing conscription is being held again in various EU member states. First, research indicates that mandatory military conscription can negatively impact labour market outcomes (Cáceres Delpiano, 2025). It negatively affects employment probability and labour market experience. Compulsory conscription also leads to lower earnings, because those who have to participate in military service have lower educational attainment and lose the opportunity to gain labour market experience (Buonanno, 2006). Hjalmarsson and Lindquist (2019) find that individuals at the lower end of the income distribution before mandatory military service, will also have lower incomes and be more likely to receive unemployment and welfare benefits after serving time in the military. This is in contrast to those at the other end of the distribution, for whom military service does not affect income, unemployment, and welfare, and may even increase income. Next, the impact of conscription on educational outcomes is unclear. Military service can have a negative or positive impact on human capital: cognitive skills do not develop further or even depreciate during service, but non-cognitive skills can develop more. Savcic et al. (2023) find that compulsory military service had a positive net effect on academic performance. However, Hubers and Webbink (2015) find that compulsory military service has a negative impact on educational performance. The effects of mandatory military conscription on health outcomes are also ambiguous. On the one hand, military service can be beneficial because life patterns are often more regular, and individuals exercise more. On the other hand, military service can have negative effects because soldiers are exposed to a more dangerous and stressful environment (Bethmann & Cho, 2023).

The effects described earlier mostly impact micro-level outcomes. However, military conscription can also impact macro-level outcomes. If military conscription is mandatory, each year a part of the potential labour supply is taken out of the labour market. This could have an impact on the overall employment rates and wages of the labour force. Research shows that military service has either no effect or a negative effect on earnings. The negative effects may be caused by the effect on human capital (Hubers & Webbink, 2015). Because of interrupted labour experience, mandatory conscription also impacts the unemployment levels (Cáceres Delpiano, 2025).

Another concern regarding military conscription, is the potential crowding-out effect due to increased military spending. One might expect when governments increase their spendings on the military, this will have negative effects on the spending on social services. However, research shows that the crowding-out effect not necessarily happens. For example, Lin et al. (2015) found for 29 OECD countries a positive trade-off between military spending and spending on education and health services. One reason may be that OECD countries are more in favour of social welfare programmes. When military spending increases, governments may also increase spending on health and education. In addition, Giray and Taşdelen (2023) also show that there is a positive effect on public education expenditures. On the other hand, Fan et al. (2018) show that increased military spending does have a negative impact on health expenditures. This poses a risk for population health, and especially for the most vulnerable groups. However, with the increased attention on defence and military spending, and more budgetary issues in various countries, it is important to follow whether and how increased military spending will eventually lead to this crowding-out effect.



Table 4: Overview of previous research on the relation between ALMP and macro-indicators of sustainable wellbeing

Economic indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of ALMP	Macro-indicator	Time frame	Results
Bakker & van Vliet	2022	26 OECD countries	Training & job search assistance	Employment rate	ST	Training and job search assistance significantly associated with higher employment rates
Bradley & Stephens	2007	17 OECD countries	All ALMP together	Employment level	MT to LT	ALMPs significantly increase employment A combination of high short-term benefits, strong ALMPs, and coordinated wage bargaining supports high employment
Fredriksson	2021	19 OECD welfare states	Public employment services, training programs, public job creation & subsidised employment	Unemployment rate	ST & LT	PES, training, and subsidized employment reduce unemployment in the short term. In the long term, only PES and subsidized employment are significantly associated with lower unemployment; public job creation has no significant effect on unemployment in either the short or long term; interaction effect: PES spending enhances the effectiveness of training programs and mitigates negative effects of job creation
Kluve	2010	19 European countries	Training programs, private sector incentive schemes, direct employment programs & services and sanctions	Employment probability of participants	ST	Program type is the strongest predictor of effectiveness: private sector incentives and services and sanctions are significantly more likely to yield positive employment effects, direct public employment programs are significantly more likely to yield negative effects, training programs show modestly positive effects; programs targeting youth are significantly less effective than those targeting adults; training programs are more effective when unemployment is high

Author(s)	Year	Country	Definition of ALMP	Macro-indicator	Time frame	Results
Abrassart	2015	19 OECD countries	Public employment services, training programmes, employment incentives & direct job creation	Employment rate of low-educated workers	ST & LT	ALMPs have mixed but important effects (low educated people): public employment services: positive short- and long-term effects for both men and women, training: modest short-term positive effects; long-term effects less clear, direct job creation: negative long-term effects, possibly due to stigmatization and lock-in effects, employment incentives: no significant effect found; job displacement and skill mismatch: creating low-skill jobs does not necessarily benefit low-educated workers, evidence of job displacement: better-educated workers crowd out low-educated ones in low-skill jobs, structural polarization of the labour market exacerbates this issue
Crépon & van den Berg	2016	OECD countries	Job search assistance, training programs, subsidized employment & information provision	Employment rates	ST & LT	Job search assistance: consistently positive short-term effects on employment; training programs: mixed short-term results; often negative due to lock-in effects, positive long-term effects, especially for women and in high-unemployment contexts; subsidized employment: positive during subsidy period, effects often fade after, public sector subsidies less effective than private sector; Information interventions: underexplored but promising, can correct job seekers' misperceptions and improve outcomes
Martin	2015	OECD countries and specific focus on IE, NO, FI, CH, JP, AU, UK	All ALMP together	Unemployment rate	ST to MT	ALMPs reduce unemployment and long-term unemployment if well-designed, effectiveness depends on scale, composition, and interaction with benefit systems
Benda, Koster & van der Veen	2020	20 European countries	All ALMP together	Long-term unemployment rate	MT to LT	ALMP alone are not universally effective: ALMP do not consistently reduce long-term unemployment across all institutional contexts, their effectiveness depends on how they interact with other labour



Author(s)	Year	Country	Definition of ALMP	Macro-indicator	Time frame	Results
						market institutions, for example employment protection legislation and unemployment benefits
Bruno & Rovelli	2010	27 EU member states	Public employment services, training programmes & subsidized employment	Employment rate & participation rate	ST to MT	ALMP spending is positively associated with employment rates, especially when adjusted for unemployment, the effectiveness of ALMP is higher in countries with employment-friendly institutional and cultural frameworks (Passive LMP spending has weaker or negative effects on employment)

Social indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of ALMP	Macro-indicator	Time frame	Results
Sakamoto	2021	18 OECD countries	All ALMP together	Market income inequality & disposable income inequality	LT	ALMP reduce disposable income inequality, no stable evidence that ALMP reduce market income inequality
van Vliet & Wang	2015	15 European countries	All ALMP together	Poverty & income inequality	ST to MT	ALMP spending is positively associated with poverty (possibly due to less generous passive benefits)
Rovny	2014	18 OECD countries	All ALMP together	Poverty of the low-skilled by age and gender	ST to MT	ALMP reduce disposable income poverty among low-educated young workers
Sakamoto	2024	18 OECD countries	All ALMP together	Poverty & inequality	ST & LT	ALMP reduces poverty and inequality only when supported by redistributive institutions

4.5. Health care

Finally, we will discuss the macro-regularities of health care. Health care is also one of the basic principles that is included in the European Pillar of Social Rights. The idea behind including health care is that everyone has the right to access affordable, high-quality, preventive, and curative healthcare in a timely manner (European Commission, 2017). In this section, we first present the theoretical rationale for investing in health care (see Figure 7), and then we provide empirical support for these arguments.

4.5.1. Theory behind investing in health care

Health and health care systems are linked to the economy, social dynamics, and the environment (Greenley et al., 2024). As a result, investing in health care is important to influence the economic, social, and environmental outcomes of welfare states.

First, health care is relevant for the economic performance of countries. As described previously, human capital formation is an important outcome of investment in social services. For countries, it is not only relevant to invest in skills formation and to increase human capital, but individuals should also be able to apply their skills and knowledge (Bloom et al., 2001). This theory is supported by the ideas of Grossman (1972) and Becker (2007), arguing that health itself is a form of human capital. Consequentially, it is crucial to invest in health care so that the working population stays healthy and employable, and that they have time available for market activities. This contributes to economic development and economic growth by reducing sickness and absenteeism, and by promoting productivity (Greenley et al., 2024). On top of that, participation in the labour market is higher when healthcare is well-developed and efficient (Darvas et al., 2022). Having a productive labour force that is active on the labour market leads in the long term to higher employment levels. This contrasts with individuals who have poor health, causing them to work less or retire earlier. This can lead to lower productivity and more unemployment (Darvas et al., 2022).

The relation between economic growth and health care expenditures might be self-evident: health care expenditures result in higher economic growth, because of a healthy, productive, and employable workforce (Bloom et al., 2004; Wang, 2015). However, some literature suggests that the impact of health care on economic growth is not straightforward. Health expenditures can improve the living conditions of the elderly population. Because they live longer, they will increasingly need health support, which can on the long-term lead to a burden on the economy. On top of that, more spending on health care can lead to less investment in other productive social services. This concern is reinforced by the concept of the 'Baumol cost disease' (Baumol, 1967), which suggests that labour-intensive sectors such as healthcare have slower rates of productivity growth. This leads to increased expenditure and further limits the investment in other social services. Adding to this complexity, Zweifel et al. (1999) hypothesize that the relationship between age and health care expenditure is driven more by "proximity to death" than by age per se. This means that while people live longer, the highest costs are concentrated near the end of life. As a result, these theories show that the relation between health care and economic growth is not clear (Ozyilmaz et al., 2022; Wang, 2015).



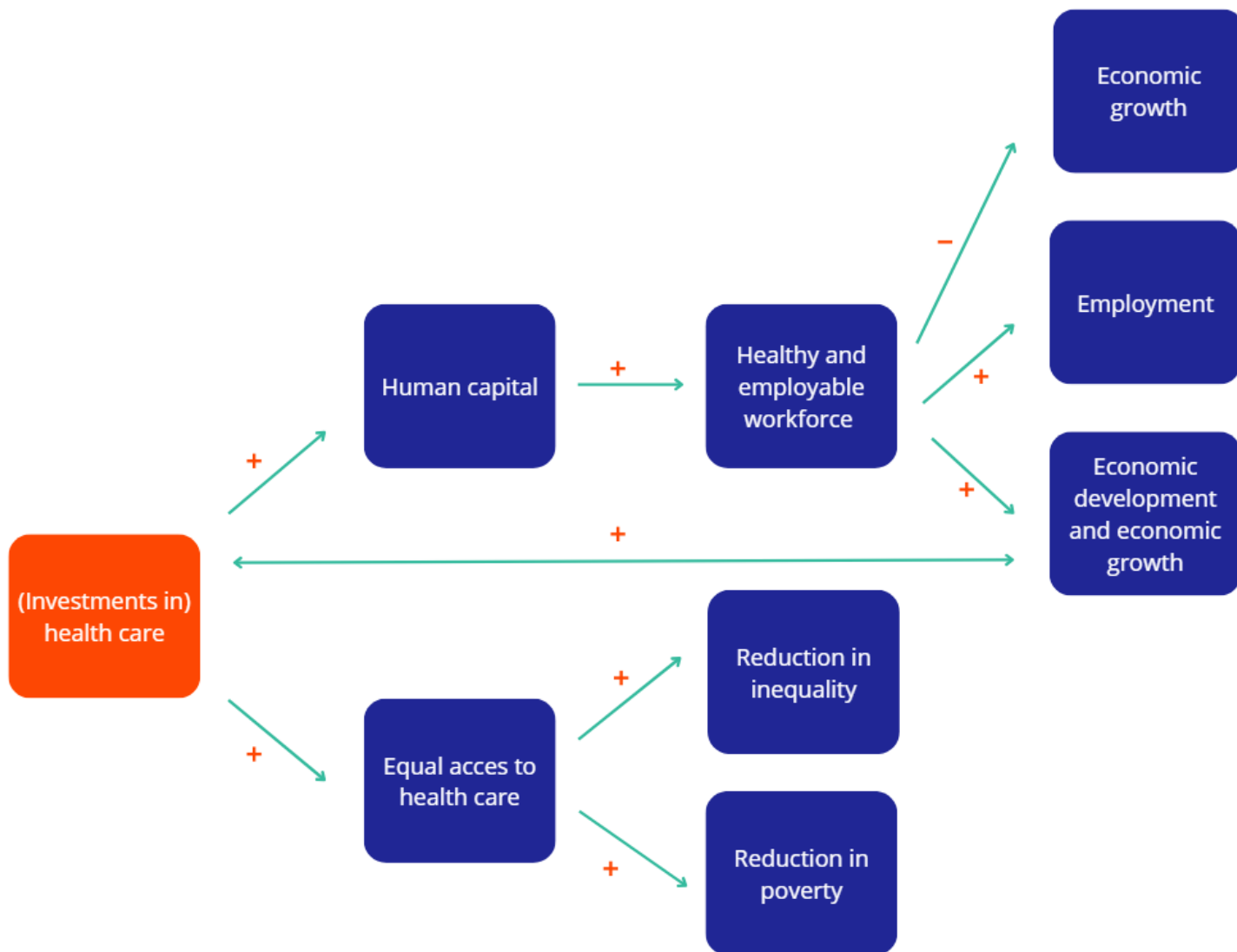
One topic that is often researched in the literature, is the bidirectional relation⁴ between health care expenditures and economic growth. Health care expenditures can lead to an increase in economic growth, but economic growth also causes health care expenditures (Lee et al., 2013; Ozyilmaz et al., 2022). Badulescu et al. (2019) state that economic growth is one of the most significant factors that influences health expenditures both in the short and long run. Health care investments are also relevant for social performances. Literature shows that health expenditures can lead to a reduction in poverty and income inequality (Atun et al., 2016). This is mainly caused by greater equality of access to healthcare. Research shows that access is often unequally distributed: poorer people often have less access (Banerjee & Duflo, 2013; Van Doorslaer & Masseria, 2004). When this is solved, more spending on healthcare can therefore lead to less inequality and poverty.

Of course, increased healthcare spending also affects people's health and life expectancy. While that is not an indicator examined in this review, it indirectly impacts social and economic outcomes. Research shows that health care expenditures have a positive effect on life expectancy because of better infrastructure, care quality, and preventive services (Aytemiz et al., 2024). This is important because a higher life expectancy means more human capital, which, as mentioned before, is essential for economic outcomes (Anwar et al., 2023). On top of that, life expectancy can be considered as one of the main indicators of socio-economic development, because it reflects progress in living standards, education, health, etc. (OECD, 2024b).

As with other types of social services, the quality of the health care is important for the effects of it. The quality of care is important for the effectiveness, efficiency, equity, and access of health care provision (Legido-Quigley et al., 2008). When high quality healthcare can be guaranteed, this benefits all indicators of sustainable wellbeing. The better the quality and the treatment, the smaller the decline in the patient's labour earnings and labour market participation, and thus in the macroeconomic outcomes (Helsø et al., 2019). This also holds for the impact on social outcomes (Jappelli et al., 2007).

⁴ Important to note here is that reverse causality might appear and should be considered (Acemoglu & Johnson, 2007).

Figure 7: Theoretical expectations about the effect of investment in health care on different indicators of sustainable wellbeing



Source: Authors' elaboration



4.5.2. Existing empirical evidence

Table 5 summarises the impact of health expenditures on economic, social, and environmental performances. A more detailed overview of the reviewed studies can be found in Annex 4.

First, the relation between health care expenditures and economic growth has been researched often. In the long run, health expenditures can stimulate economic growth (Beylik et al., 2022; Kim & Ahn, 2020; Wang, 2011). Wang (2015) estimates the optimal level of health expenditures: 7.55% of GDP should go to health care. Below this threshold of health care expenditures, economic growth can still be improved. When the level of expenditures exceeds this amount, it can lead to negative effects on economic growth. This can be explained by the crowding out effect: there is less investment in other social services which are also important for economic growth. The bidirectional relation between health care expenditures and economic growth is also researched and confirmed by existing literature (Ozyilmaz et al., 2022; Wang, 2011). In addition, Beylik et al. (2022) demonstrate that public health expenditures have a positive effect on per capita income in the long term. Moreover, increasing health care expenditures have a positive impact on income growth (Rivera & Currais, 2003).

Research shows that poor health reduces labour force participation and productivity, which are both important factors of economic performance. Early health intervention and good childhood health also influence future productivity and have long term economic benefits (Darvas et al., 2022). As a result, it is essential to invest in health care systems to make sure that the current and future labour force are healthy and employable.

The relation between health care investments and employment has not been researched very often. However, having poor health can be seen as a proxy of little investments in health care. Poor health increases the risk of becoming unemployed and early retirement in the short run (Schuring et al., 2007). In the long term, self-perceived poor health, mental health problems, and chronic diseases are also a strong predictor of unemployment (Van Rijn et al., 2014). These studies therefore demonstrate the necessity of investing in healthcare to prevent an increase in unemployment levels.

Next, investment in health care appears also relevant to reduce income inequality. Research shows that health care has a redistributive effect. On the short term and medium term, health care results in a reduction of inequality (Jianu, 2020; Vaalavuo, 2011). This is for example because good provision of care ensures that households can save money that would otherwise have to go towards health care and because there is vertical redistribution from higher to lower income groups. Sánchez and Pérez-Corral (2018) state however that this relation only holds for emerging countries. This can be explained by the fact that each increase in health expenditures has a higher marginal impact in these types of countries. According to Marical et al. (2006), health care is relatively evenly distributed. However, lower-income groups benefit more from health care provision in relative terms. It is essential that health care indeed ensures equal access, because health inequality reinforces income inequality. This in turn can lead to lower economic growth on the long term (Darvas et al., 2022).

Last, the relation between health care and environmental outcomes is researched. This relation can be bi-directional, but the focus has mostly been on the negative impact of environmental problems on people's health, leading to more health care spending. The literature about the impact of social services on carbon emissions is very limited. Ozyilmaz et al. (2023) did find for the G7 countries a

decline in carbon emissions when public health care expenditures increased. Health spending contributes thus to environmental quality. The authors suggest that this may be due to improved public health infrastructure, increased awareness, and greater support for cleaner technologies.

The other part of the relation that considers the impact of carbon emissions and particulate matters on the investments in health care is covered more extensively in the literature. First, research shows that rising CO₂ emissions contribute to higher health care expenditures in EU countries (Bayar et al., 2021; Socol et al., 2023). This can be explained by the fact that higher concentrations of CO₂ emissions may lead to more health issues. This in turn then leads to higher health care needs. Consequentially, governments will have to spend more on health care services. Next, there is also strong evidence on how environmental problems drive health care spending. Deryugina et al. (2019) show that air pollution, measured by particulate matter exposure, leads to significant increases in medical costs (Deryugina et al., 2019). This is also supported by research of Graff Zivin and Neidell (2013), who show that pollution exposure leads to illness episodes, which in turn increases health expenditures.



Table 5: Overview of previous research on the relation between health care and macro-indicators of sustainable wellbeing

Economic indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of health care	Macro-indicator	Time frame	Results
Kim & Ahn	2019	15 OECD countries	Public healthcare expenditure	Economic growth	LT	Public spending on health care has positive effects on economic growth, welfare services are more effective in promoting economic growth than cash transfers
Wang	2011	31 countries	Total expenditure on health	Economic growth	ST & LT	There is a stable, positive cointegration between health care expenditure and GDP across all countries (LT), health care expenditure growth stimulates economic growth (ST) Bidirectional relation between health care expenditures and economic growth
Ozyilmaz et al.	2022	27 EU countries	Government health expenditures	Economic growth	LT	Bidirectional causality between health expenditures and economic growth, health expenditures positively affect economic growth in most countries
Wang	2015	33 OECD countries	The ratio of public health expenditure to GDP	Economic performance	LT	The relationship between health expenditure and economic growth is non-linear Optimal health expenditure level: 7.55% of GDP: below this threshold: increases in health spending lead to higher economic growth & above this threshold: additional spending lead to diminishing or negative returns

Author(s)	Year	Country	Definition of health care	Macro-indicator	Time frame	Results
Schuring et al.	2007	11 EU member states	Poor health	Unemployment & early retirement	ST to MT	Poor health increases the risk of becoming unemployed and early retirement
Darvas, Moës, Myachenkova & Pichler	2018	EU countries	Health care systems	Labour market outcomes	MT to LT	Poor health reduces labour force participation; poor health reduces productivity; childhood health strongly influences learning and future productivity, early health interventions yield long-term economic benefits
Van Rijn et al.	2014	9 European countries	Poor health	Unemployment	MT to LT	Self-perceived poor health, mental health problems and chronic diseases are a strong predictor of unemployment
Rivera & Currais	2003	24 OECD countries	Total health expenditures	Income growth	LT	Health expenditure has a significant positive effect on income growth, reverse causality exists between health and income, countries with lower health expenditure benefit more from additional investment
Beylik et al.	2022	21 OECD countries	Per capita health expenditures, public health expenditures	Economic growth & per capita income	LT	All health expenditure indicators are positively and significantly related to GDP, public health expenditure and share of health expenditures in GDP have a positive effect on per capita income



Social indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of health care	Macro-indicator	Time frame	Results
Sánchez & Pérez-Corral	2018	28 EU member states	Medical services, public health, R&D	Income inequality	MT	In emerging member states: inequality decreases, in other member states: insignificant relation or inequality increases
Vaalavuo	2011	14 European countries	Publicly provided or financed health care services	Income inequality	ST	Health care has a strong redistributive effect
Marical, d'Ercole, Vaalavuo & Verbist	2006	26 OECD countries	Publicly provided health care services	Income inequality	ST	Health services are relatively evenly distributed but benefit lower-income groups more in relative terms
Jianu	2018	28 EU member states	Government expenditures on health	Income inequality	MT	An increase in health spending leads to a decrease in the Gini coefficient
Darvas, Moës, Myachenkova & Pichler	2018	EU countries	Health care systems	Inequality	MT to LT	Health systems should ensure equal access, health inequality reinforces income inequality and can reduce long-term growth
Aytemiz et al.	2024	31 OECD countries	Health expenditures	Life expectancy	LT	Health expenditures have a positive effect on life expectancy
Anwar et al.	2023	38 OECD countries	Public spending on healthcare per capita	Health outcomes: infant mortality & life	LT	Government health expenditures are related to lower infant mortality and higher life expectancy

Author(s)	Year	Country	Definition of health care	Macro-indicator	Time frame	Results
				expectancy at birth		

Environmental indicators of sustainable wellbeing

Author(s)	Year	Country	Definition of health care	Macro-indicator	Time frame	Results
Ozyilmaz, Bayraktar & Olgun	2023	G-7 countries	Public health expenditures	Environmental pollution	LT	Health care expenditures have a negative effect: reduction in CO ₂ emissions



4.6. Green services

The sustainable wellbeing perspective that is at the core of SWINS also points to the importance of environmental outcomes. According to the sustainable welfare approach, economic and social goals should be achieved, but this should be done within planetary boundaries, as is also argued in the theoretical framework of SWINS (Ciani & Fattacciu, 2025). One way of integrating the environmental perspective is to look at the environmental impact of social services and policies, for instance by looking at the impact on carbon emissions that follow from the provision of these services. However, as became clear from the literature review of the different social services, the impact of investment in social services on emissions (or other environmental outcomes) has hardly been researched.

There are, however, other ways to investigate the environmental outcomes of services, by using the lens of sustainable and eco-social welfare thinking (Ciani & Fattacciu, 2025). Eco-social are services or policies that enable on pursuing social and environmental goals simultaneously (Mandelli, 2022). This fits in the sustainable development topic since welfare states are facing the social-growth trilemma: the challenge of combining economic, social, and environmental policy goals. We provide here some examples of domains where the link can be considered as most clear and promising for further research. Social housing is a good example of an eco-social service. It is a social service that considers both the social and the environmental aspect of sustainable wellbeing. On the one hand, it can support social goals. Without social assistance, housing costs can put a lot of pressure on households, especially on low-income households. When these households have access to social housing, they need to spend less on housing themselves. As a result, providing social housing can have redistributive effects (Marical et al., 2006). On the other hand, green investments in social housing are also important for the environmental aspect of sustainable wellbeing. The aim of making social housing green is to reduce environmental impact and the use of natural resources, while improving human health and overall quality of life (Rezaallah et al., 2012). For example, if social housing is provided with energy efficiency in mind, this could result in better environmental outcomes. The housing sector is responsible for a large part of energy consumption and CO₂ emissions. When energy efficiency is considered, energy consumption and CO₂ emissions can be reduced.

Next to implementing eco-social services, there is also the possibility of making social services green. By implementing these green services, welfare states can achieve the goals they have in mind when investing in social services, while also paying attention to the ecological aspect. These green services fit within the sustainable welfare approach. Here, we give the example of making active labour market policies green. This can be done in different ways. As explained earlier, ALMP exist of different types of policies. One of these policies is the creation of jobs. Within the idea of green services, there is the possibility of creating (more) green jobs. Green jobs refer to any decent work that contributes to maintaining and restoring the quality of the environment, whether it is agriculture, industry, services, or administration (Renner et al., 2008). For example, this can be jobs in renewable or circular energy. Public employment services can also be made green. For example, within the information objective, an eco-social work label could provide information on whether a job is sustainable or not. Employers could also make use of eco-social transformation consultancy to help with the transition toward sustainable production processes and goals (Neier et al., 2024). To

promote sustainable wellbeing, retraining and qualification programs can also focus on the eco-social dimension. With this, ALMP can focus on (re)training for the sustainable job market and provide information about how sustainable certain occupations are (Bohnenberger, 2022).

Lastly, research shows that the healthcare sector is a large emitter of carbon emissions. Karliner et al. (2020) estimated in 2019 that if the health care sector was a country, it would be the fifth largest emitter worldwide. Therefore, making this sector green would also be beneficial for environmental outcomes. This could be achieved by optimising the use of resources, reducing waste, and adapting to the changing needs of the population in times of climate crisis in order to provide care more efficiently (Greenley et al., 2024).



5. Conclusions and future research

The review of previous research shows that the relation between investment in social services and (a large part of) indicators of sustainable wellbeing has been researched quite extensively for mostly economic and social dimensions.

The concept of the Coleman's boat shows that social investment impacts individuals on the micro-level, and that this in turn then leads to macro-level outcomes. However, this idea treats the implementation of different services as isolated policies. It is clear that this does not align with reality. Therefore, it is essential to study the interplay between different social services. There are already a number of studies investigating this interaction. For example, Nieuwenhuis (2022) researches how ECEC and ALMP work together in improving female employment levels. The author states that there is welfare pluralism: ALMP and ECEC together positively affect women's employment. This is achieved through different mechanisms: ECEC reduces inactivity and ALMP reduces unemployment. Plavgo (2023) researches how education is complementary to the functioning of ALMP. If educational attainment on the national level is high, it is related to increased effectiveness of ALMP. This indicates that it is relevant to study how different social services together can improve effectiveness. This also refers to the focus on the so called cross-cutting indicators: governments try to reach an objective by investing in different social services at the same time.

In this review, we only investigated the impact of investments in in-kind social services and policies. However, as mentioned earlier, the combination of in-kind services with cash transfers is also important to consider. On the one hand, providing in-kind benefits and traditional forms of social protection together is necessary to encounter the negative effects associated with the Matthew effect. As becomes clear from the theory and existing evidence, the Matthew effect can be observed in several social services. When designing and implementing social services, it is important to consider this and ensure that the poor don't become poorer, and the rich don't become richer. On the other hand, research shows that effectiveness of social services can be increased when it is implemented together with other types of social policies. For example, Benda et al. (2020) found that the effectiveness of ALMP depends on how they interact with unemployment benefits. Esping-Andersen (2002a) also states that investment in social services can reduce poverty but that it is only efficient if there is also focus on the maintenance of income. Consequently, it is evident that the relationship between in-kind benefits and cash transfers is also relevant to study.

When reviewing the macro-regularities about investment in social services, it becomes clear that most of the social services only impact economic and social outcomes. This lies in line with the social investment approach. Research into environmental outcomes remains rather limited. Within the current context of climate change and its effects, it is necessary to study how social investment can have an impact on this. With the sustainable welfare approach and the eco-social welfare approach, there is already a good start. However, the literature would benefit from empirical research and evidence on the relation between investment in social services and the environmental outcomes.

The aim of the SWINS project is to contribute to filling part of the research gaps that emerged from this literature review on macro-regularities. We will do an empirical analysis on how social services impact key indicators of sustainable wellbeing, thereby also trying to integrate the environmental dimension. In addition, we will also focus on the interaction of cash social protection policies and publicly provided social services.

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