CHARLES UNIVERSITY

FACULTY OF SOCIAL SCIENCES

Institute of Political Studies

Bachelor's Thesis

2023 **Samuel Lucas Basler**

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Basic Income as a Possible Solution to the Trade-off between Full Employment and Economic Growth in Germany

Bachelor's Thesis

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Abstract

This thesis examines the potential introduction of an unconditional basic income as a solution to the trade-off between full employment and economic growth in the context of the advancing automation of Industry 4.0. The thesis assumes that the German economic system is subject to a growth constraint that can only be achieved through further technological advances and automation, which, on the other hand, results in jobs being replaced by machines such as artificial intelligence and job seekers being unable to find new employment. The study is divided into a philosophical and an economic part. The philosophical part examines whether an unconditional basic income is socially desirable and politically feasible. Normative conflicts with social justice are pointed out, but it is found that it is institutionally conceivable within the framework of social legislation. In the economic section, various macroeconomic scenarios and models are considered to estimate the effects of introducing a basic income. It is shown that there can be both positive and negative effects. The microeconomic part examines expected behavioral changes in terms of job choice, demand for jobs, and demand for healthy food. Overall, the bachelor thesis argues that the introduction of an unconditional basic income is not an optimal solution to the trade-off and that the economic implications cannot be estimated due to a lack of empirical data.

Keywords

Basic Income, Stability Act, Industry 4.0, Technological Unemployment

Declaration of Authorship

1. I hereby declare that I have compiled this thesis using the listed literature and resources only.
2. I hereby declare that my thesis has not been used to gain any other academic title.
3. I fully agree to my work being used for study and scientific purposes.

In Prague on 26.04.2023 Samuel Lucas Basler

Bachelor's Thesis Proposal

Research Question(s) and Topic Characteristics:

With the Stability Law (StabG) of 1967, the German federal government set four economic goals to maintain and expand the population's welfare. The Stability Act still decisively influences economic policy behavior and thinking today. The four goals are stability of the price level, full employment, external balance, and steady and appropriate economic growth. If the four goals are respected, significant economic fluctuations do not occur, and the economy runs stably, according to the idea behind the law. The inevitable fourth industrial revolution, the networking among machines, and the use of artificial intelligence (Ai) are leading to a caesura in the labor world. As workflows and production chains improve, work shifts. Many non-academic jobs in sales and production are being replaced by computer systems. The people who lose their jobs to artificial intelligence can't always be trained or change jobs to an industry that isn't fully digitized. This leads to a conflict of objectives between full employment and economic growth. The social question arises. What form must social and economic policy take to compensate for the adverse effects of ongoing digitization? What alternatives are offered to people who lose their jobs because of digitization? In the past industrial revolutions, grievances were remedied by introducing and expanding social security systems. Think of the introduction of health, unemployment, disability, and pension insurance. In the bachelor thesis, I want to examine basic income as an answer to the social question under philosophical and economic aspects. The research question "*Is the introduction of a basic income to compensate for the negative effects of Industry 4.0 a good idea from a philosophical and economic point of view?"* aims at giving a new direction to the previous failed reform proposals of the Stability Law. Therefore, the goal of the thesis should be seen as an impulse for discussion and as a starting point for further research.

Working hypotheses:

1. The goal of full employment is indispensable for the stability of the economy.
2. The digitalization wave through Industry 4.0 is inevitable.
3. In contrast to the previous industrial revolutions, the fourth industrial revolution leads to fewer and more specialized jobs.
4. The loss of jobs to computer systems threatens the social and economic stability of the country.
5. Basic income could provide social and economic stability in the right configuration.

Methodology:

This bachelor's thesis aims to examine the introduction of a basic income as a political measure to maintain economic stability and social cohesion. To this end, the first part of the thesis examines the changes in the German working world triggered by advancing digitalization and evaluates their positive and negative effects. The negative effects (e.g., high unemployment among the low-skilled) form a social question. Different forms of basic income are presented as compensation for the negative effects. Based on the first part, the introduction of a basic income is considered philosophically in the second part. In the third part, the compatibility of a basic income with the economy will be examined. For this purpose, I will draw on existing empirical knowledge, such as the Finnish study on an unconditional basic income and its effects on people's behavior. After the philosophical as well as economic analysis, I will draw a short interim conclusion, which will lead to a reform proposal for the Stability Act in the fourth part.

Abbreviations

A = Technical Progress

AA = Domestic Demand for Domestic Goods

Ai = Artificial Intelligence

C = Consumption

DD = Domestic Demand

ESS = European Social Survey

G = Government expenditure – here: pay out of basic income

ga = Growth of Technical Progress

GDP = Gross Domestic Product

gn = Growth of Population

GVC = Global Value Chain

i = Interest rate

I = Investment

IS-LM = Investment-Saving – Liquidity preference-Money

K = Capital

L(i) = Cash Holding Coefficient

M = Money Supply

N = Number of Workers

P = Price Level

PS = Price Setting

R&D = Research and Development

s = Saving Rate

SOEP = (German) Socio-Economic Panel

T = Taxes

u = Unemployment Rate

W = Nominal Wage

W/P = Real Wage

WS = Wage Setting

Y = Gross domestic product, Production, Income

z = Catch-All Variable for Labor Market Regulation – here: the existence of a basic income

Z = Demand

ZZ = Total Demand for Domestic Goods

δ = Depreciation Rate

μ = Profit Markup

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1 Introduction and Methodology

1.1 Introduction

At the end of the 19th century, the social question was raised for the first time in the German Empire because of the poor working conditions that resulted from the first industrial revolution. The question of how the workforce could be protected from the negative effects of these conditions and how labor protection could be improved was at the center of attention. Under the leadership of imperial chancellor Otto von Bismarck, the first German social legislation was introduced, which included new insurance policies against unemployment, illness, and coverage for old age (Stiftung Deutsches Historisches Museum, 2013). In the aftermath of the second and third industrial revolutions, social legislation was expanded into the social market economy. This is a neoliberal market economy with a growth constraint, but also with legal restrictions to secure social interests (Bundeszentrale für politische Bildung, 2016). To secure social peace and protect prosperity, the *Act to Promote the Stability and Growth of the Economy*, also known as the *Stability Act*, was established in Germany in 1967. This law aims to create a framework for future fiscal policy. The main task of this law from a macroeconomic perspective is to mitigate extreme economic phases such as booms and recessions and to promote and expand prosperity through a stable economic situation (Michaelis et al., 2015). To accomplish this mission, four economic policy goals are pursued to achieve "macroeconomic equilibrium": Price stability, full employment, balanced foreign trade, and steady and adequate economic growth (Adam, 2022, p. 13). For 55 years, the objectives of the Stability Act have not changed and have not been adapted to technological progress. In June 2015, the German Council of Economic Experts reviewed the Stability Law on behalf of the German government and found no need for reforms, as "automatic stabilizers" (automatische Stabilisatoren) (Michaelis et al., 2015, p. 9) such as unemployment benefits minimize the effects of strong economic fluctuations. In years of economic crisis, social security systems can mitigate the goal of full employment. In the same year of the publication of the last assessment of the Stability Act, the American machine learning company OpenAI was founded. At the end of 2022, the chatbot ChatGPT was presented to the public, impressively demonstrating at an early stage of development where the use of artificial intelligence (Ai) can lead. OpenAI is not the only company focused on artificial intelligence development. A variety of new Ai programs have entered the market, all intending to make workflows more efficient and replace monotonous and repetitive human tasks. These developments affect a wide range of industries, such as the IT industry in programming, creative and journalistic jobs in the media industry,

lawyers in the legal industry, and bankers and traders in the finance industry (Mok & Zinkula, 2023). It is evident that not only workers in simple, manual jobs such as cashiers, waiters, or warehouse clerks could be replaced by a machine soon. The use of artificial intelligence may have a disruptive effect on the entire labor market and lead to an industry-wide wave of layoffs. Not every laid-off worker can be retrained for new fields of work or move into jobs that rely on human labor, such as nursing professions or educators. In a German economic system with a distinct growth constraint and capitalist orientation, the use of Ai and general digitization in the context of Industry 4.0 promises a competitive advantage, as production processes can be made more efficient (Binswanger, 2022; Nguyen & Vo, 2022). Assuming this development, a new conflict of goals arises between full employment and steady and appropriate economic growth. On the one hand, technological advancements are necessary to maintain a level of technological progress that leads to more efficient labor and thus more production for the same amount of capital employed (Herz, 2021). On the other hand, many people lose their jobs or are no longer needed to the full extent due to technological progress. The four defined goals of the Stability Act are no longer sufficient to keep extreme economic phases short and mild in extent.

In this context, the bachelor thesis aims to examine basic income as a solution to this conflict between full employment and economic growth because of the new technological progress. For this purpose, the thesis is divided into a philosophical and an economic part. **Subchapter 1.2** presents the methodology and the underlying concept of basic income. The second chapter is concerned with the philosophical evaluation of basic income and is divided into three subchapters. **Subchapter 2.1** discusses how a weak form of Ai is relevant to the rationalization of work. **Subchapter 2.2** addresses the question of whether basic income is socially desirable. Here, the chronology of the industrial revolutions is first described (**2.2.1**). This shows that the fourth industrial revolution raises a new social question, since there are winners and losers (**2.2.2**) and that various future scenarios are conceivable (**2.2.3**). The virtue ethics view (**2.2.4**) using the capability approach suggests that basic income is desirable because it improves access to things that characterize being human. However, from a consequentialist perspective (**2.2.5**), the introduction is not desirable, since only the consequences of Industry 4.0 are mitigated, but no improvement of the cause will take place. The existing condition gets worse because the payment of the basic income eliminates unemployment support. **Subchapter 2.3** examines the political feasibility of basic income. In the inductive approach, the historical development of social legislation (**2.3.1**) is assessed as an institutional condition that makes its introduction inductively plausible, even if no party supports it. The normative approach (**2.3.2**) finds that basic income is incompatible with the four principles of social justice in Germany. The empirical approach (**2.3.3**)

is a democracy's most important criterion for evaluating political feasibility and shows, based on surveys, that a small majority is in favor of basic income, although financing was not clarified in the surveys. The third chapter is devoted to the economic evaluation of basic income and is divided into two subchapters. **Subchapter 3.1** uses scenarios to examine the effects of basic income from a macroeconomic perspective on the labor market (**3.1.1**), goods market (**3.1.2**), capital stock (**3.1.3**), international competitiveness (**3.1.4**), and overall economic growth (**3.1.5**). Depending on the scenarios provided, the introduction of a basic income can be both desirable and undesirable from a macroeconomic perspective. Eventually, its development and likely occurrence depend on individual decision-making. In this context, **subchapter 3.2** examines the microeconomic effects on labor choice. It is argued that joyless jobs can experience income increases (**3.2.1**), but these may lead to an unequal distribution in the labor market, as the efficiency wage no longer matches the equilibrium wage. This can lead to higher unemployment (**3.2.2**). However, higher income through the introduction of basic income can have positive effects on people's diets (**3.2.3**), as people can afford healthier food. The conclusion summarizes the most important findings of the thesis (**4.1**), shows the limitation of the research (**4.2**), and gives an outlook on further relevant aspects based on the results of this thesis (**4.3**).

The bachelor thesis will argue against the introduction of a nationwide basic income since the arguments against such an introduction weigh more and the trade-off between full employment and economic growth is unlikely to be resolved by it.

1.2 Methodology

The introduction of a basic income is examined both philosophically and economically as a potential solution to the trade-off between full employment and economic growth. The underlying assumption is that the fourth industrial revolution has already begun and is progressing in an unstoppable way. This leads to the expectation that many people will lose their current jobs or must adapt to new working conditions during automation. The philosophical part examines books, journalistic articles, and theses to determine whether a basic income is socially desirable and politically plausible. For the economic part, mainly economic textbooks and lecture notes are used. The focus is on macroeconomic and microeconomic model setups. The effects of a basic income on the labor market and economic development are examined. The thesis' contribution lies in the consolidation and evaluation of the results from a philosophical and economic perspective, as well as the model setups.

1.2.1 Concept of the Basic Income

The idea of basic income has a long history dating back to the 16th century. Nevertheless, there is no clear concept today (Chohan, 2017). This thesis examines the concept of an unconditional basic income, financed by the German government, and paid to every German citizen from birth. The basic income is intended to serve as a transferred benefit and is not meant to be the same as equalizing workers' wages. It remains possible that large wage differentials will persist, and that disposable income will be increased through work effort. The amount of basic income corresponds to the subsistence minimum set by the federal government and varies according to age. In 2023, the annual basic income would be 6.024€ until age 18 and 10.908€, thereafter, corresponding to the subsistence level (Leersch, 2022). The amount is the same for each recipient and is dynamically adjusted for inflation. The subsistence minimum defines the amount that allows people without the additional income to cover their living expenses but does not allow financial resources for additional needs or savings. Other sources of income, assets, or special circumstances are not considered. People who are dependent on assistance due to disabilities, accidents, or illnesses receive additional payments from a hardship fund. The unconditional nature of the basic income reduces the administrative burden and thus enables more efficient implementation.

1.2.2 Differentiation from the Payment of Existing Social Benefits

At present, the *Bürgergeld* (citizen's income) is paid out in Germany as a social benefit for the unemployed and those in need of assistance. Single adults are paid a monthly amount of 502€, while couples receive an amount of 451€ per partner. The amount of the benefit for children depends on age and varies between 318€ and 420€. In addition, reasonable utilities and rent costs are covered. Under the Citizen's Income, existing assets are limited to 15.000€ per person after a waiting period of one year, and full cooperation with the Employment Agency is a condition for payment of the transfer benefit. Lack of cooperation or violation of obligations can result in a 30% reduction of the benefit paid (Bundesagentur für Arbeit, 2023a; Bundesagentur für Arbeit, 2023b). The Bürgergeld must be applied for and is subject to verification. Compared to the concept of an unconditional basic income, recipients of a Bürgergeld cannot decide for themselves about their own choice of job or place of residence.

1.2.3 Philosophical Perspective

The philosophical part clarifies two fundamental questions about the acceptability and feasibility of basic income. These two questions represent the methodological structure and goal of this part:

I. Is The Basic Income Socially Desirable?

For answering the question, the development of the industrial revolution is first described to get a historical picture of the development of the working world, which also always influences the living world of people. For this purpose, the collection of Hirsch-Kreinsen et al., (2018) and the research report of the Institute for employment research (Wolter et al., 2015) provide the literary basis. The financial report of the Swedish National Bank Riskbank (2015) explains a motivation to act, as a disruptive development in the world of work is expected as a result of Industry 4.0. Based on the four future scenarios by Fergnani (2019), four scenarios are outlined concerning Industry 4.0, showing which target state should be achieved and which developments are not desirable. This creates a sub-question of duty towards the part of the population that loses due to advancing automation. For the motives behind this fulfillment of duty, the capability approach of Nussbaum (2019) is used in the virtue ethics view and the debate between Varoufakis and Acemoglu (2021) in the consequentialist view, under the aspect of harmonizing the winner and loser groups of Industry 4.0.

II. Is The Basic Income Politically Plausible?

Regardless of the financial feasibility, the political feasibility is analyzed. This means that it is plausible in Germany with its informal and formal institutions that the introduction of the basic income can be implemented. For this purpose, an inductive approach is chosen with a look into the history of German social legislation. The examination of the already introduced social legislation will then give the theory of whether it is conceivable that a basic income is introduced in the present time. The government websites of the Bundesarchiv Stiftung Deutsches Historisches Museum (2013) and the political education website Bundeszentrale für politische Bildung (2016, 2021) are the sources of information. Based on the description of the German understanding of justice by Liebig and May, (2009) and Bothfeld (2018), it is assessed whether the introduction of basic income is plausible on a normative level. Whether an empirical plausibility exists is evaluated based on the societal mood on basic income which was conducted by the German Institute for Economic Research (Adriaans et al., 2019).

1.2.4 Economic Perspective

The economic part aims to examine the effects on the economy as a whole and the individual behavior of the hypothetical introduction of a basic income in Germany. Therefore, the economic part consists of two parts, macroeconomic and microeconomic.

The *macroeconomic section* aims to examine the impact of basic income on the economy. Since there are no empirical studies at this level yet, models and scenarios are used to examine arguments

for different scenarios and to explain their effects. A central focus is on the labor market, where possible changes in labor demand and supply are examined in the context of a labor market model, with the price-setting power of firms and wage-setting power as the main parameters. It is assumed that the monetary policy of the euro is not adjusted to the introduction of the basic income in Germany. Therefore, in the IS-LM model, only the effects on the goods market are considered, with an unchanged money supply amplifying the demand effects in terms of consumption, investment, and interest rate. The Solow-Swan model examines changes in the capital stock the level of education as human capital, and technical progress. Since exports are crucial for the German economy, the model of a goods market in an open economy is used to examine what effects the introduction of basic income has on international competitiveness. Finally, from a macroeconomic perspective, the desirability of basic income depends on economic growth. Whether basic income ultimately promotes or hinders growth is evaluated in two scenarios. The lecture notes by Professor Herz (2021) on the Solow-Swan model, the goods market in an open economy, and by Professor Stadelmann (2021) on labor market theories and the IS-LM model, as well as the explanations in the macroeconomic book by Blanchard and Illing (2014), form the basis for modeling and evaluating the consequences. The paper by Petersen (2017) is used to identify the macroeconomic areas that are affected.

The *microeconomic section* builds on the descriptions of the macroeconomic part on the topics of the labor market and the goods market and focuses on individuals as well as companies in three sections. The microeconomic part aims to show the behavioral changes caused by basic income and to present their consequences in models. The first section examines the effects of a basic income on job choice and changes in work effort. Here, it is assumed that workers behave as if they are seeking for their maximum expected utility and choose their jobs according to maximum utility. Before the introduction of basic income, extrinsic motives prevail in job choice and intrinsic motives play a minor role. With the introduction of basic income, a preference shift takes place in which money is no longer the greater motivator, but rather the enjoyment of work (Pech, 2020). This shift leads to a preference for joyful work over joyless work. The demand shift has implications for pay structures, which in turn affect work effort. To model the changes in the choice of the optimal work bundle, the model on the optimal bundle of leisure and work by Singh (2014) is translated to the basic income introduction and work motives. The second section addresses the macroeconomic equilibrium condition of the labor market and examines how companies respond when workers have more wage-setting power. In this context, the efficiency wage theory described in the Wirtschaftslexikon (2016) is used to describe an unbalanced labor market. Varian's (2019) minimum wage model is used to model the new situation in the labor

market. The last section is dedicated to the analysis of the individuals' demand for goods, which exists due to a higher income because of the basic income. Varian's (2019) microeconomic principles on *Demand* and *The Income Effect* form the basis for this research. Additionally, here a link is made between a healthier diet and increased income. A study by Heinrich Böll Stiftung (2021) is used for this purpose.

1.2.5 Exclusion from Case Studies

In the context of examining basic income as a potential solution to the trade-off between full employment and economic growth, this thesis will not consider experiments and case studies on basic income that have already been conducted. The basic income experiments conducted so far (Katapult Magazine, 2019) have limitations regarding their transferability to Germany. These experiments were either limited in time or do not fulfill the characteristics of the basic income concept of 1.2.1.

A single case study, conducted in Namibia between 2007 and 2009 with 930 individuals, met the criteria of universality and level of basic income above subsistence level (Rigmar, 2013). However, it did not test the problems of financing and lifetime payment, and statewide implementation of basic income (Rinke, 2020). The transferability of such an experiment from emerging and developing countries to an industrialized country like Germany is additionally questionable. For this reason, the results of these previous studies are not considered further in this thesis.

2 Philosophical Perspective on Basic Income

2.1 Definition of Artificial Intelligence

The umbrella term artificial intelligence (AI) is understood here as a system that can independently search out information from an existing large data bank according to the request and learn from the data set. Relevant to the job market is the ability of AI to imitate human thinking and behavior. Thereby, AI plays a relevance in analytical and creative work (Bruhn, 2021, pp. 7-8), which can substitute or complement workers. A distinction is made between weak AIs that pretend to have an intelligent thought process and strong AIs that can actually think for themselves and do not pretend to be intelligent (Russell & Norvig, 2012, pp. 1176-1190). A distinction does not play a role in this thesis, since even weak AI can replace humans in their characteristics.

2.2 The Desirability of Basic Income for a Society

2.2.1 Industry 4.0: Analyzing Past Industrial Revolutions to Assess the Future of Work

Changes in an economy are inseparable from changes in the world of human work, which can be observed in the industrial revolution. An analysis of past industrial revolutions is of importance for assessing the future of work, especially for the current fourth industrial revolution, also referred to as *Industry 4.0*.

With the invention of the steam engine in the late 18th century, the first industrial revolution began. It marked the transition from an agrarian society to an industrial society and led to the emergence of the wage-labor relationship, in which work was performed for pay. The electrification of production in the early 20th century was the basis for the second industrial revolution, which enabled mass production and assembly line work. The third industrial revolution in the 1970s introduced digitization and the use of information technologies. It led to the automation and coordination of work steps. The fourth industrial revolution began at the beginning of the 21st century with the digitization and networking of machinery, also known as the *Internet of Things*. Industry 4.0 also includes the transformation of analog work steps into digital work environments and information technologies that are integrated into the work process and the value chain (Wolter et al., 2015, pp. 8-10; Hirsch-Kreinsen et al., 2018, pp. 35-36).

With every industrial revolution, not only the technical requirements change but also the requirements for the workforce. There is a change in the labor market in terms of organization

and qualification. In the first industrial revolution, the feudal system and homestead labor was replaced by a factory system, which led to the emergence of the class system consisting of the labor class, the proletariat, and factory owners, the bourgeoise (Müller-Jentsch, 2016, p. 80; Marx & Engels, 1848). With the second revolution, labor was divided into monotonous, repetitive individual steps on the final product, leading to "alienation from labor" (Hirsch-Kreinsen et al., 2018, p. 35). In the third revolution, not only did skill requirements become higher, but technology entered the personal world. Automation and the use of computer programs significantly reduced the administrative workload (Müller-Jentsch, 2016, p. 81). A process of dissolution of boundaries could be observed (Hirsch-Kreinsen et al., 2018, p. 35), in which work can be done regardless of the company's location and regardless of the company's office hours, which made it difficult to make a clear distinction between working time and free time.

2.2.2 Industry 4.0: Impact on Employment and the Emergence of New Jobs

The fourth industrial revolution will have a significant impact on employment, as new jobs will emerge and other jobs will disappear, requiring workers to adapt to the new circumstances. Automation is expected to reduce workloads, which could lead to new desirable work patterns such as the "three-hour shifts or a fifteen-hour week" predicted by Keynes (1928, p. 329).

Although the impact of the fourth industrial revolution on the world of work and life is not yet fully foreseeable, disruptive developments are emerging. The Swedish National Bank has analyzed that the fourth industrial revolution may cause permanent unemployment in the form of so-called "technological unemployment" (Riskbank, 2015, p. 57). Unlike previous industrial revolutions, where people only temporarily lost their jobs due to new technologies and automation, the fourth industrial revolution could make every second job redundant in 20 years (Riskbank, 2015). An analysis of the future of work initiated by McKinsey Global Institute comes to similar conclusions and assumes that from 2035 to 2055, one in two jobs will have been taken over by Ai or machines. Already at the time of the study's publication, over 60% of employment in industrialized countries had a rate of around 30% that could be replaced by machines (Manyika et al., 2017, p. 5). With the technologies available today, about 50% of the work in Germany (Manyika et al., 2017, p. 15) can be automated. On the other hand, new occupations are emerging, and existing job fields such as automation, cybersecurity, data analysis, and machine learning are being greatly expanded. This increases the requirements for future workers (World Economic Forum, 2018). The four future scenarios of Fergnani (2019) are adapted to describe four developments of Industry 4.0 in the next section.

2.2.3 Industry 4.0: Opportunities and Risks – Four Different Future Scenarios

Fergnani (2019) describes four scenarios: Technology Optimism, Social Conflict, Regulated Steady-State, and Societal Mindset Shift Toward the Common Good. The scenarios serve as extreme examples in their respective nature. An overlap of the scenarios, as well as mitigation, are imaginable as more probable.

In the *first scenario*, an ideal liberal world is described in which there is a very high level of automation that allows people to no longer must work. The new technologies take over all the people's fields of work and can do the work better than the people. The machines ensure an optimal allocation of resources so that material poverty no longer exists. Although machine owners are comparatively wealthy compared to those who do not own property, the basic needs of all people are satisfied. In this world, where people no longer define themselves through work, conspicuous consumption gains importance (Veblen, 1899, pp. 33-47). People try to distinguish themselves from society through individual consumption and to escape from the otherwise similar world of Ai resource allocation. People now work only to feel useful and to give meaning to their lives. However, there is no longer a category of *unemployed*. Interactions between people outside their social group hardly take place anymore. Society is no longer shaped by a shared idea of how to live and work together; instead, it is the machines that keep order and holds society together.

The *second scenario* describes a dystopian liberal world in which technological progress does not provide sufficient economic growth. Through the process of automation, machines have taken over most jobs and only the machine owners can maintain secure living conditions. Growing resource inequality arises because Ai cannot allocate goods equitably. The government has introduced a machine tax and increased the income tax for the remaining workers, but this increase is not sufficient to finance social benefits. A further increase is not possible without fear of a large capital outflow and brain drain (Lammam & MacIntyre, 2016). This leads to parts of the population living in great poverty. The unequal distribution of resources in combination with high unemployment leads to social disruption between capitalists and non-capitalists.

The *third scenario* describes a regulated economic order in which, despite continuous technological progress, as in scenarios one and two, laws and AI are used to ensure low unemployment and a high level of inequality is limited. Most people work to control the machines and any work that benefits society is paid, for example, raising children. Compared to scenario two, there is no social disruption as there is no conflict between capitalists and non-capitalists as everyone has enough, and any work that benefits society is paid. However, the redistribution of resources may discourage more work, since redistribution occurs when a certain number of possessions is reached.

Scenario four describes a transformation of society in which the focus is on social interaction and community. A society that consists only of selfish utility maximization is not sustainable in the long run and harms peaceful community life through increased polarization (Collier & Kay, 2020). Here, technological progress improvements benefit everyone. Common good over self-interest is the idea behind this scenario. Technological progress supports this idea by optimizing the allocation of resources as in the other scenarios. In this world, money and property have decreasing importance, as people achieve a higher social status through their commitment and work for the community. People work where they can best help the community and their work is valued accordingly. Compared to the other scenarios, there is no unemployment and inequality, as everyone acts in a common good-oriented manner. There is a common idea of living together, that everyone makes their contribution and thus a peaceful coexistence is created.

In the first future scenario, inequalities are amplified, which can lead to increased tension in society instead of greater social cohesion. The second scenario describes a worst-case scenario in which many people lose their jobs to machines and thus fall into poverty and meaninglessness. Such a development should not be the future scenario of the fourth industrial revolution. The third scenario shows that regulatory intervention can achieve a future scenario in which the work of machines benefits everyone. However, regulation must ensure that incentives for further development and new inventions are maintained, otherwise, it is no longer worth taking financial risks to develop a vaccine against a virus, for instance. It can be doubted that most people act out of altruistic motives for the benefit of the general public and pursue improvements. The fourth scenario aims to re-educate society and teach people to put the common good above self-interest. It is an unrealistic scenario. The basic capitalist structure must therefore be preserved, as it is also recognized in the Stability Act. However, the fourth industrial revolution must not lead to some social groups benefiting too much from technological progress and dividing society.

The four future scenarios have shown which development of the fourth industrial revolution is desirable. The following two sections deal with the responsibility towards unemployed people and whether a basic income can be considered socially desirable if the question is answered in a virtue ethics and consequentialist ethical framework.

2.2.4 Virtue Ethics Approach: Martha Nussbaum's Capability Approach

This thesis assumes that progressive digitization will lead to the disappearance of working fields, especially in monotonous and repetitive work, as described in sections 2.2.1 and 2.2.2, due to automation. Given this background, so-called technological unemployment is expected to increase, which may lead to polarization within society. On the one hand, there are wealthy machine owners

as well as highly qualified people who control and further develop these machines. On the other hand, some people cannot keep up with technological progress because technical education or affinity is not given. This development leads to a division of the labor market into a high-paying and a low-paying sector. Workers in the low-wage sector are increasingly restricted in their negotiating position due to advancing automation, which favors increased exploitation by employers. As a result, the efficiency gains achieved through automation do not benefit a company's broad workforce (Acemoglu & Johnson, 2023).

Basic income can be a solution here by enabling a separation between income and work (Precht, 2022). Employees can thus better escape the dominance of employers and enforce better working conditions. Moreover, previously unpaid work that is nevertheless of great social importance, such as caring for relatives or raising children, could receive financial recognition through basic income. Which principles can be used as a basis for the introduction of a basic income and what role does social justice play in this context?

Nussbaum (2019) provides a *non-contractarian approach* to determine the duties towards unemployed and low-paid people. The *capability approach* derives the essential capabilities that are essential for being fully human. These include, for example, the capability of bodily integrity, which contains personal self-determination, or the capability of being able to derive joy from life, which contains the ability to spend leisure time. Through the capability approach, Nussbaum creates a framework for social justice that means that every person, regardless of their natural endowment of health and abilities, should have access to all the capabilities that constitute human beings. For Nussbaum, merely having rights is not enough if they are not available. Capability here means a combination of the freedom to claim a particular capability and the availability of that capability. From this social justice approach, a duty for the world of work can be derived. Every person should have equal access to these capabilities regardless of his or her form of employment, whether as a permanent employee or as a worker on a zero-hour contract. Different human endowments at birth should not lead to an unequal distribution of capabilities. The natural endowment, such as a person's intelligence, should not determine how much free time a person has or how good the working conditions are. Basic income can thus be seen as a solution to several problems related to increasing digitalization and automation. It can help reduce the level of exploitation by weakening employer dominance, valuing manual, and important work, and giving all workers some freedom of choice in accepting a job. Workers on zero-hours contracts know that their livelihood is secured by basic income and can balance fluctuations in work opportunities to better manage their leisure time. In addition, freedom of choice allows workers to pursue occupations that are seen as meaningful, such as social engagement, learning new skills, or unleashing creative potential.

These measures help improve social justice and promote social cohesion in society. However, the individual impact of basic income depends on the prevailing attitude of the individual recipient, so the good intentions behind basic income can also be counterproductive. The existing is reinforced by the basic income. Dutta et al. (2013) describe this effect as an *amplification effect*, which at the state level leads to existing institutions being amplified by foreign aid money, and thus no change takes place. In the context of basic income, this means that a person who is an alcoholic and receives basic income will buy and consume more alcohol instead of taking the initiative to be of service to society. While on the other hand, an ambitious single mother may have the opportunity to pursue further education and re-enter the labor market because of the basic income. Other effects of basic income are discussed in the next section.

2.2.5 Consequentialist Approach: Harmonization of Social Classes

From a virtue ethics perspective, a basic income appears to be socially desirable because it offers people more freedom to pursue their desires and preferences in terms of occupations and thereby achieve a higher level of happiness. This section discusses the question of whether basic income should still be considered socially desirable, given its potential consequences.

Basic income is desirable if it is more likely to achieve the target state in society than existing social benefits, which are based on the principle of solidarity. The *target state* describes a state of harmony between the winner and loser groups of the industrial revolution. Such harmonization means that the differences in quality of life remain comparable, that everyone benefits from the industrial improvements, and that working outside the industry is similarly meaningful. In its current state, Germany acts according to the solidarity principle, in which the majority of the population pays more into the social fund than it receives as transfer payments to help a small, needy part of the population. A need assessment takes place when paying out the transfer benefits that are financed by the solidarity community. Only people who can prove a needy situation receive financial assistance. In contrast, when the basic income is paid out, a fixed amount is transferred to all people without verification and regardless of their situation. Every citizen is thereby classified as equally needy or wealthy. The principle of solidarity is no longer considered. Prioritization in the distribution of transfer payments is dropped, resulting in a misallocation of state funds. People who need more support due to their circumstances, for example in urban regions with higher living costs, do not receive more money (Varoufakis & Acemoglou, 2021).

Another possible consequence of basic income is that occupations in the low-wage sector might not be pursued or that inflated wages might have to be paid to incentivize workers. In the high-paying sector, a lack of ambition could set in, leading to workers not getting the most out of

themselves and settling for easier positions and job performance. However, if these occupations are necessary, wage appreciation could be expected, which may lead to overall inflation. More about this is described in the macroeconomic section.

Both the German welfare system in the current state and the basic income merely compensate for the consequences of the industrial revolution at the effect level. In the current state, the loss of jobs or insufficient income is compensated by state transfer payments (Deutsche Rentenversicherung, 2022). In the case of basic income, an unconditional transfer payment is made, regardless of employment. In both cases, however, the cause of job loss or low income is not addressed. People lose their jobs because of inadequate education or lack of opportunities to adapt to new demands. Equality in transfer payments does not lead to harmonization between groups, since the poor remain poor relative to the wealthy. A parallel upward shift of all incomes takes place. When the basic income is paid out, it can be considered a passive income that replaces all other social benefits. Employment agencies can no longer demand cooperation in finding a job since sanctioning instruments no longer exist, and the basic income is paid unconditionally. The principle of a *quid pro quo* then no longer applies, which is important for living together (more about this in the normative approach section 2.3.2). Moreover, the long-term unemployed who need intensive support to reintegrate into society, so that the *good* is amplified by transfer payments (see 2.2.4), no longer receive them. The state of unemployment itself no longer exists. The lack of pressure from the state and the incentive not to work can prevent long-term unemployed people from maintaining a structure in life and affect their social participation, as people define themselves by their role in society (Bothfeld, 2018).

The state has a paternalistic obligation to promote well-being in society, and a basic income is counterproductive. Instead, the state should take alternative measures to achieve the target state. One possibility is to promote access to the new work areas of Industry 4.0. School education and further training could be adapted to provide the necessary skills and knowledge for this purpose. Another measure would be to improve working conditions and promote analog work that benefits society (Varoufakis & Acemoglou, 2021). In addition, the minimum wage and tax policies could be adjusted so that people in all fields of work can live good life.

From a consequentialist perspective, basic income does not seem desirable. It may strengthen the bargaining position of workers, but it does not seem to work as a solution to the trade-off between full employment and economic growth in this view.

2.3 Political Feasibility of Basic Income

2.3.1 Inductive Approach: Historical Social Legislation

Regardless of the virtue ethics and consequentialist approach, the investigation of the political plausibility of a basic income shows whether its introduction in Germany is also politically plausible. To this end, the first section examines the existing formal and informal institutional landscape regarding basic income. To achieve a plausible change in the law, it is necessary to examine the emergence of existing sociopolitical institutions, which are the result of ideologies of a better society on the part of the population (Schwarz, 2022).

The introduction of a basic income can be understood as social legislation that gives everyone more freedom of choice in life and, in context with the industrial revolution, the goal is to maintain social peace. Considering institutional history, is it plausible for Germany to introduce a basic income as new social legislation?

The first social legislation in Germany was a reaction to concerns about the unrest that could threaten the social order. Working conditions worsened significantly in the second industrial revolution, leading to resentment among the population. Imperial Chancellor Otto von Bismarck responded to these grievances in 1883 by introducing the first health insurance. A year later, the first accident insurance was introduced, and in 1889, the first retirement and disability insurance. After the revolution in 1919, the eight-hour day was introduced, and the welfare of workers increasingly became the responsibility of the state (Stiftung Deutsches Historisches Museum, 2013). The social policy was established as a new political institution that aimed to improve the living conditions of the population and secure the livelihood of all people, as well as to mediate between the different interests of employers and employees (Bundeszentrale für politische Bildung, 2021).

The development of economic policy can also be seen as an indicator of plausibility. In 1948, the first German Chancellor Konrad Adenauer introduced Ludwig Erhard's new free-market concept of the *Soziale Marktwirtschaft* (social market economy). The social market economy is understood to be an economic policy in which the free-market theory is legally framed to preserve liberties and social interests. This is intended to balance free market economics with social concerns (Bundeszentrale für politische Bildung, 2016). It is important to note, however, that social legislation has continuously developed, and state benefits have so far continued to expand. However, the introduction of a basic income would have a new dimension, and therefore an inductive conclusion from the past to the future is not simply possible.

A crucial condition for a politically plausible implementation of basic income in Germany today is majority support in the legislature. Currently, none of the parties in the Bundestag supports a

basic income proposal (Blaschke, 2021). Given this political landscape, the introduction of a basic income seems implausible at present unless there is significant popular pressure. Another factor that could speak to the implausibility of basic income in Germany is the understanding of norms within society. A closer look at a benefit norm is given in the next section.

2.3.2 Normative Approach: Principles of Social Justice and the Incompatibility with Basic Income

In Germany, the distribution of goods and burdens is mainly conducted by institutions. Goods are, for example, privileges, property, or wages, and burdens are taxes and duties. The state takes on the role of distribution and, in the ideal case, applies the four principles of social justice in Germany: *Principle of Equality*, *Principle of Merit*, *Principle of Entitlement*, and *Principle of Need* (Liebig & May, 2009). These principles are the result of historical social reforms as described in 2.3.1. The *principle of equality* means that everyone has the same rights regardless of family background, gender, or ethnicity, and no one is given privileged treatment. This principle does not mean that everyone is entitled to a high-paying job, but that everyone has access to, for instance, the education that makes that job possible. This access is an equal opportunity. However, there is the problem here of unequal distribution of natural endowment, which cannot provide equality of opportunity. The p*rinciple of merit* states that personal effort is rewarded and leads to more goods than others who make less effort. However, merit is not always comparable, and the determination is therefore ambiguous. A nurse receives significantly less than an assembly line worker at an automobile company, despite a high level of effort. The *principle of entitlement* describes access to benefits that have been gained through the individual's past work. Those who work longer are also entitled to a higher pension later. The problem here is that while the length of time paid into the pension insurance determines the pension amount, other factors such as the chosen profession can lead to other people with a shorter payment period receiving more pension at the end of the intergenerational contract no longer works because the ratio between pay-in and pay-out no longer guarantees a secure pension. The *principle of need* is the promise of the state to help people in case of innocent need or hardship. For example, in serious illness, disability, or old age, then in Germany compensation payments or need payments are made such as continued payment of wages (Lohnfortzahlung) in case of illness, blindness benefits, or basic security in old age. There is the problem of the determination of need and the amount of the need payment. Despite the problems, an attempt is made to ensure social justice by redistributing goods and burdens according to these principles. Thus, large income inequality is not unjust if it is the result of these

four principles. Instead, it is unjust if the result of this inequality is intentionally created by favoring or disadvantaging other people.

The introduction of the basic income breaks with these four principles of social justice and pays out the same amount of transfer benefits to everyone without considering individual circumstances. The state's historical responsibility to its citizens and the promise to compensate for needs through innocent circumstances would no longer exist, since there would be nothing other than the basic income as a guarantee of the lowest level of subsistence. A cancer illness with a long inability to work leads to a direct social decline despite previous great performance and good wages (Bothfeld, 2018). When considering social justice normatively, basic income does not seem politically plausible.

2.3.3 Empirical Approach: Surveys on Public Opinion towards Basic Income in Germany

This section examines the empirical basis for testing whether the introduction of a basic income is feasible and plausible despite institutional and normative contrasts. In doing so, a total of four surveys are assessed, each including two initial surveys from different institutes and supplemented by a follow-up survey after one year. The results of these surveys were compiled by Adriaans et al. (2019). The first survey was conducted by European Social Survey (ESS) from late 2016 to early 2017 and included 2852 respondents who were interviewed with a questionnaire but without detailed information on financing. In the follow-up survey at the end of 2018, 1096 of the original respondents were interviewed again, selected by sampling from the pool of the initial survey.
The survey institute Kantar Public conducted an initial survey on behalf of the Socio-Economic Panel (SOEP) in August-September 2017, interviewing 2031 respondents. Again, respondents were not given detailed information on financing and were asked about other topics. One year later, 2031 people were again interviewed under the same circumstances during the same two-month period.

In four different surveys, respondents were informed about the features of basic income. The basic income would cover basic living costs and replace many existing social benefits. It would be paid unconditionally and at the same rate for everyone and would not affect additional earnings. It would be financed through taxes. The question to be answered was, *would you be against or in favor of such a basic income in Germany?* This question could be answered using a four-point scale with two agree and two disagree options (Adriaans et al., 2019, box 2). In the first ESS survey, 52% of respondents rejected basic income, while 45% were in favor and 3% abstained. In the former East German states, which were under Soviet occupation and a planned economy, 52% were in favor. Citizens in former West Germany, which was under British, French, and U.S. occupation and

managed as a liberal social market economy (see 2.3.1), rejected basic income by 54%. The first SOEP survey showed slight acceptance (49%) compared to rejection (45%), while 6% abstained. Again, there was higher acceptance in eastern Germany (56%) than in the West (49%). A follow-up survey of ESS and SOEP showed a noticeable change from the first survey in only one year. For SOEP, overall approval increased by 2% to 51%, while for the ESS re-survey, approval increased by 4% percentage points to 49% (Adriaans et al., 2019, chart 2).

From a sociodemographic perspective, all surveys conducted show slightly higher approval of basic income in eastern Germany. Furthermore, individuals under the age of 26 are 23.8 percentage points more likely to agree to basic income than other age groups. It can also be seen those supporters of the merit principle, which was examined as a norm in connection with the introduction of basic income in section 2.3.2, are 8.2 percentage points more likely to disagree with the introduction of basic income (Adriaans et al., 2019, table 1).

It should be noted that the financing of basic income was not explained in detail in the survey and that the introduction of basic income requires a willingness to reform and an adjustment in the understanding of the norm, as described in section 2.3.2, which were not asked in the survey. However, a tendency toward approval of basic income can be seen. It would be interesting to see how citizens would vote if the financing were clarified.

3 Economic Perspective on Basic Income

3.1 Macroeconomic Implications

The macroeconomic analysis addresses the question of whether the introduction of basic income as an instrument to compensate for job losses and wage losses due to automation is desirable from a macroeconomic perspective. Various effects play a role, such as shocks in the labor market, goods market, and financial market, changes in the performance of the national economy due to changes in the capital stock, productivity and labor productivity, income distribution, and external balance as well as effects on economic growth. So far, there has been no national-wide implementation of a basic income, so models and scenarios are used here to examine the macroeconomic implications of a basic income.

3.1.1 Basic Income Effect on the Labor Market

As described in section 2.2.4, the basic income has implications for the bargaining power of workers. The connection between price setting and wage setting plays an important role in determining labor market equilibrium. Workers' wage setting can be described by the following formula (Blanchard & Illing, 2014, pp. 195-204):

$$W = P \times F(u, z)$$

The formula is composed of the aggregate nominal wage W, which depends on the price level P. A higher price level positively affects income because workers expect an adjustment in wages when prices are higher, and companies are willing to pay more to compensate for inflation. The nominal wage is also affected by the function F, which is negatively affected by the unemployment rate u and positively affected by the collective variable z. The collective variable z is used as an indicator of labor market regulations, such as higher social benefits, minimum wage, or employment protection. The underlying idea behind the z variable is that an increase in this variable supports the demand for higher wages. This is because higher social benefits mean that workers fall more smoothly into the social safety net when they lose their jobs, leading to lower income losses. This reduces the pressure to take a new job. The introduction of the minimum wage in Germany has led to wage growth among the lower wage groups (Pusch & Schulten, 2019). Basic income is seen as an intervention in labor market regulation that increases the collective variable z and can thus be expected to lead to wage increases.

In the context of pressure for growth and increasing automation, the unemployment rate u is expected to increase, negatively affecting the nominal wage level. The new unemployment is not the result of a lack of new jobs but is rather a result of the lack of retraining and switching opportunities for workers. In particular, low-skilled office workers and retail employees have difficulty switching to newly emerging high-skilled fields of work due to a lack of appropriate prior training. A switch to analogous fields of work, such as the care or nursing professions, is also not possible for every affected employee, as there is not always personal accessibility to such professions. However, basic income improves the bargaining power of workers by increasing the variable z. Therefore, in the long run, either the negative effects of u can be expected to exceed the positive effects of z and the nominal wage decreases, the effects of u and z can be expected to be equal and the nominal wage does not change, or the effects of z can be expected to exceed the effects of u and the nominal wage increases. Companies' price setting can be described here by the following formula:

$$P = (1 + \mu) W$$

For this thesis, the firm's pricing consists of only one cost factor, the nominal wages W for the input factor of production labor, and because the study takes place in an imperfect market, companies can charge higher prices than a pure cost-covering price. The variable μ describes this market power with which firms can enforce a higher price. In a perfect market, $\mu = 0$ and the selling price would be equal to the zero-profit price, which consists only of nominal wages.

For workers and firms, the real wage $\frac{W}{P}$, which is price adjusted, is more relevant. Therefore, for the determination of the labor market equilibrium, both formulas are adjusted for the real wage:

Wage-setting: $\frac{W}{P} = F(u, z)$

Price-setting: $\frac{W}{P} = \frac{1}{1+\mu}$

The wage-setting function shows that workers' real wages depend negatively on unemployment and positively on improvements in labor market regulation from the workers' perspective. On the other hand, the pricing function describes how firms' pricing power affects people's real wages. Firms with increased price-setting power can implement higher prices, which in turn lowers the real wage of workers (Blanchard & Illing, 2014, pp. 199-200). Especially in industries such as

pharmaceuticals and technology, which have rather non-elastic customers, companies can enforce higher prices. In contrast, in key German industries such as chemicals, mechanical engineering, and the automotive industry, there is strong competition, which makes it more difficult for companies to raise prices (Seppelfricke, 2021).

This results in the following graphical relationship in the labor market:

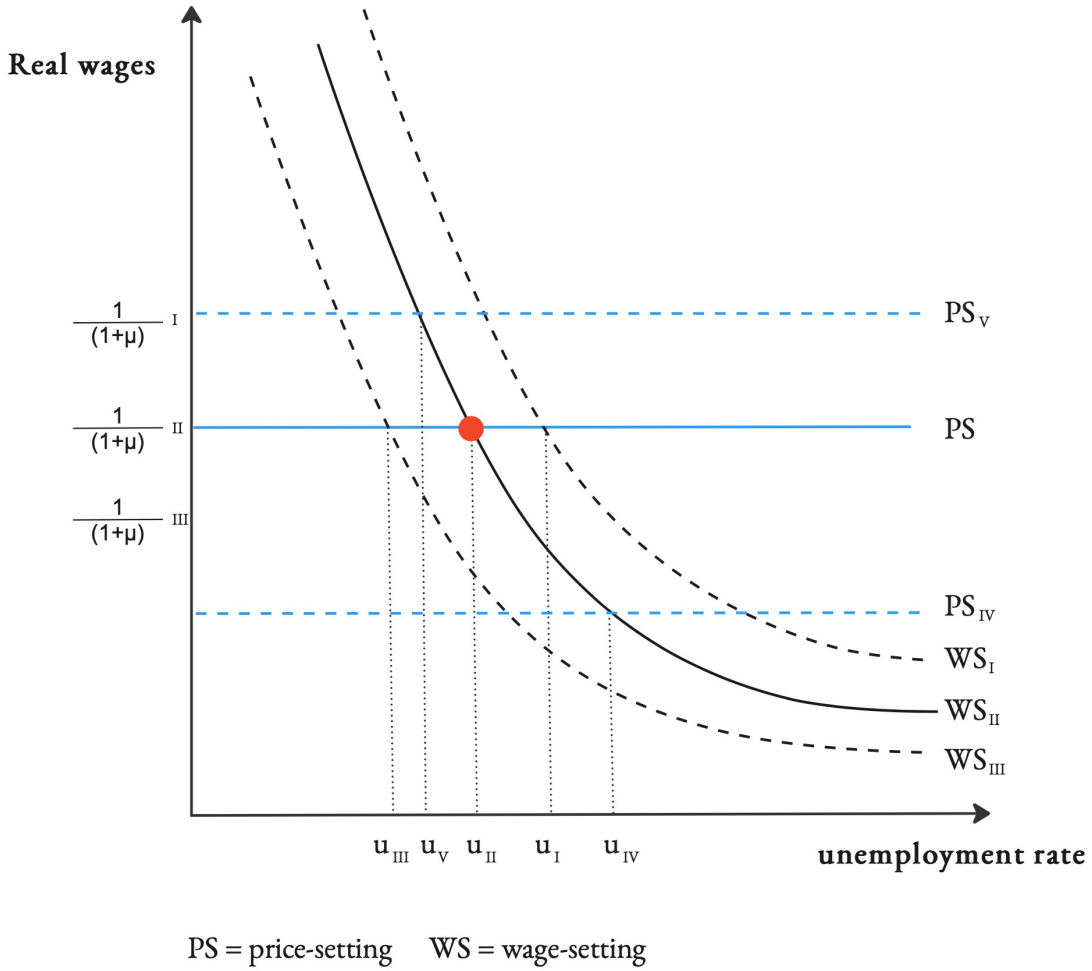

Figure 1 Labor market – equilibrium of price-setting and wage-setting (Own figure based on Blanchard & Illing, 2014, p. 199)

As unemployment increases, the real wage rate decreases, therefore the wage-setting curve is falling. Companies can set their prices depending on the real wage; therefore, the price setting is a horizontal straight line. In the context of automation, the market power of companies may increase while real wages decrease. It is also conceivable that real wages rise due to increased labor

productivity. The possible developments based on this labor market model are explained in the following three scenarios for labor demand and two scenarios for labor supply to illustrate the possible effects (Petersen, 2017).

I. Reduction in Labor Demand

If basic income is introduced, the overall result will be that employees want to work less. In the low-wage sector, employees stop working because they have enough money through the basic income and the wage no longer serves as an incentive. Workers with physically demanding jobs retire earlier and compensate for their retirement losses with basic income. Workers in other jobs reduce their working hours and use the basic income to compensate for their drop in income (Petersen, 2017). In the labor market model, wage setting shifts to the right as the supply of workers increases. If prices remain constant, this leads to an increase in the unemployment rate. To compensate for the increase, companies must give up additional profit and raise the real wage $\frac{W}{P}$ to motivate workers to work more and to lower the unemployment rate again.

II. Unchanged Labor Demand

It is possible that the unemployment rate does not increase at all as a result of the basic income, since employees in the low-wage sector do not stop working, and use the basic income to improve their standard of living; employees in physically demanding jobs receive more recognition and thus work longer; and employees in well-paid jobs continue to work normally since the subsistence income payment is not sufficient to reduce working hours (Petersen, 2017). Nothing changes in the labor market model.

III. Increase in Labor Demand

Basic income could also lead to an overall increase in labor supply because more employees are willing to work or to work longer. In the low-wage sector, the basic income is not offset by further income such as the current social benefits (Petersen, 2017). This means that extra work is always worthwhile. Basic income can also be used to pay for childcare or care for family members, which can lead to single parents being able to work more and mothers and fathers being able to return to full-time work sooner. In the labor market model, the price-setting curve shifts upward, leading to an increase in aggregate real wages through a quantitative increase in labor, not through a decrease in profits.

IV. Labor Supply Decreases

Due to the basic income and the increase of z, employers are forced to pay higher salaries to get the same work performance. In the long run, this pressure leads to employers having the incentive to rationalize jobs faster through machines (Petersen, 2017). When paying higher wages, less can be invested and companies can no longer grow at the same rate as before, as a result, fewer workers are hired in the long run.

V. Labor Supply Increases

In the basic income concept used here (see 1.2.1), social benefits are largely replaced (Petersen, 2017). In Germany, social benefits are paid on a parity basis, which means that employers and employees share the costs equally. By removing these costs, non-wage labor costs decrease, which makes hiring new workers more attractive. The increase in production due to higher consumption, which is discussed in the next point, also requires more workers, so the supply of labor increases as a result.

3.1.2 Basic Income Effect on Consumption and Interest Rate

The introduction of a basic income represents an increase in government spending, which causes a shock in the goods market and has an impact on consumption, investment, and interest rates within the economy. For determining the new equilibrium, the relationship between the goods market and the financial market in the IS-LM model is important (Blanchard & Illing, 2014, pp. 144-166). The equilibrium in the goods market can be described by the following formula:

$$Y = C(Y - T) + I(Y, i) + G$$

The IS curve represents all combinations of interest rate i and output Y at which the goods market is in equilibrium. Production Y at the equilibrium is equal to the demand, which depends on consumption C, which in turn depends on available savings, the difference between income Y and taxes T, as well as an investment I, which depends positively on production Y and negatively on the interest rate i, and government spending G.

The IS equation examines the impact of increases in government spending on consumption, investment, and, eventually, the output of the economy. As the interest rate i increases, it becomes more attractive to hold money than to spend it, so it is assumed that investment I decreases and

income or production Y decreases. Therefore, the IS curve is downward sloping. The financial market equilibrium can be described using the following formula:

$$M = P \times Y \times L(i)$$

LM curve shows all combinations of money supply and money demand where the financial market is in equilibrium. The money supply M in equilibrium is determined by the price P, the production Y and the cash holding coefficient $L(i)$, which reflects the relationship between income and savings. The LM equation here analyzes the demand for money in terms of basic income and the interest rate, which eventually affects production and income. As money demand increases with rising income Y, and money supply is set by the central bank, an increase in money demand leads to an increase in the interest rate i, and lending money becomes more expensive. For this reason, the LM curve is a rising curve. The equilibrium between the goods market and the financial market can be represented graphically:

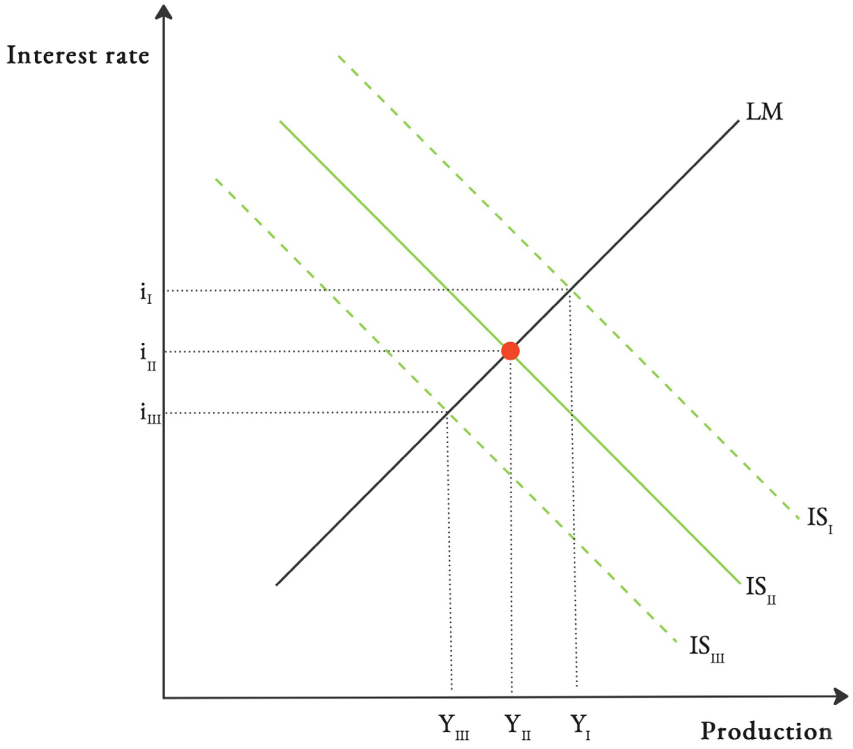

Figure 2 Change in the equilibrium of the goods and financial market due to basic income (Own figure based on Blanchard & Illing, 2014, p. 154)

The development of the fourth industrial revolution and the increase in automation are expected to lead to a decrease in consumption C in the goods market because fewer workers are in permanent employment and part of the work is taken over by machines (see 2.2.2). As a result

of the decrease in consumption, the interest rate i decreases. Basic income could compensate for this decrease by increasing government spending. Three scenarios are conceivable, either that the increase in G exceeds the decrease in C, so that the interest rate rises, that G rises by the same amount as C falls, so that basic income has no effect on the interest rate, or that the decrease in C undermines the increase in G, so that the interest rate falls. The conceivable developments of the interest rate and consumption are examined using the IS-LM model following three scenarios:

I. Consumption Increases and Interest Rate Increases

Basic income represents a passive source of income for citizens, comparable to a salary increase (Petersen, 2017). In particular, workers who experience income losses due to automation can be compensated by the basic income. Consequently, many workers with low or average incomes adjust their consumption behavior and spend almost all the basic income they receive. This leads to an adjustment in living standards, for example, through increased travel, and restaurant visits. The microeconomic part of the analysis goes into more detail about the change in individual behavior.

Within the IS-LM model, the effect of an expansionary fiscal policy can be observed, which is reinforced by an unchanged monetary policy. Consumption C increases and shifts the IS curve upward to the right, eventually leading to higher output. In the new equilibrium, a higher interest rate level can also be observed. Given that the basic income is introduced only in Germany, the money supply is not adjusted by the European Central Bank. Therefore, in the case of an increased demand for money, there is no compensation in the form of a higher money supply, which would be the case in the case of a LM shift to the lower right. This leads to an even stronger increase in the interest rate. As a result of this increase, a slowdown in consumption and investment sets in, as it is more lucrative to hold the money at high-interest rates and new loans become less attractive for investment.

Overall, production Y rises, allowing workers to benefit from increased wages, which in turn further boost consumption. A multiplier effect sets in, leading to further new demand for money that cannot be offset in the financial market by the fixed money supply. Eventually, equilibrium is reached with higher interest rates and production. However, the high-interest rates and the decreasing willingness to invest may have the opposite effect, leading to a decrease in the economy's output.

II. Consumption and Interest Rate Unchanged

The announcement of the basic income causes a similar effect on price development as the announcement of the tank discount in the summer of 2022 immediately before its introduction. The mineral oil companies raised prices in a similar proportion to the tank discount (tagesschau, 2022) so that the anticipated stimulating effect on consumption evaporated. In terms of basic income, the inflation effect could be even worse, as citizens rely on additional income to maintain their standard of living. The IS curve remains unchanged and the equilibrium in the IS-LM model is maintained, but only by the basic income.

As the basic income is designed as a subsistence level, the government would have to adjust the level of the basic income to the new prices to ensure that it serves its purpose. However, this adjustment could lead to an inflationary spiral, as companies would again raise prices. The state could try to address this by intervening in the market, for example by setting maximum prices. However, this would lead to an imbalance in the goods market and reduce the volume of goods sold.

Ultimately, the introduction of basic income could harm the national economy, as the high level of government spending would no longer provide financial resources for economic stimulus in phases of recession. The goal of minimizing the effects of automation could thus be counterproductive. However, company shareholders could benefit from the price increase.

III. Consumption Decreases and Interest Rate Decreases

Basic income allows for to reduce in the demand for labor, as described above in the description of the situation in the labor market under *I*. In this case, the basic income would support the reduction of labor input and workers would be satisfied with a lower income (Petersen, 2017). Thus, consumption would decrease, because workers who completely quit their jobs would only live on the subsistence level, which does not allow for additional consumption than the necessities of life, and workers who use it to compensate for a reduction in working hours would experience a reduction in additional wage payments such as bonuses, vacation, or Christmas bonuses. The expansionary effect of the basic income would evaporate.

Due to lower demand for labor and reduced consumption, production would fall. A decrease in demand for goods meets a smaller supply of goods and a new equilibrium results in the IS-LM model with unchanged monetary policy. The IS curve would shift down to the left, which is equivalent to a restrictive fiscal policy with increased government spending. Consequently, the economy would enter a recession as the economy shrinks. The demand for money would decrease, causing the interest rate to fall. Low-interest rates would make it more attractive for

companies to invest again since loans with low-interest rates are available. However, expectation also plays an important role. If companies assume that demand will fall in the long term and people will increasingly rely on basic income, this could dampen investment prospects. Consequently, no investments could be made despite the attractive interest rate. This would lead to a gradual downsizing of the economy.

3.1.3 Basic Income Effect in the Solow-Swan Model

The basic income has an impact on capital accumulation and the development of human capital, which in turn influences the productivity of an economy (Petersen, 2017). Depending on the production method, production can be more labor-intensive or capital-intensive, as the factors of production labor and capital are substitutes (Herz, 2021). This relationship can be described with the following production function (Blanchard & Illing, 2014, pp. 332-411):

$$Y = F(K, N, A)$$

In an economy, production depends on the capital input K, the number of workers N, and the technological level A. The function F indicates the mix of those factors that positively affect output growth. The Solow-Swan model shows the relationship between *capital per effective labor* and *production per effective labor*. The model shows an equilibrium, the so-called steady state, which is a long-term growth equilibrium in which the level of investment equals the level of investment required. The required level of investment is determined by the depreciation rate δ, technical progress ga and growth rate of the population gn, and the level of investment depends on the savings rate s and the quantity of production. If the *investment level* is higher than the *required investment level*, then the capital intensity per effective labor increases, and if the required investment level exceeds the investment level, then the capital intensity per effective labor falls.

The growth model is based on three functions in the graphical representation:

The production function per effective labor, the investment function per effective labor, and the required investment function per effective labor.

The production per effective labor $f(\frac{K}{AN})$ and the investment per effective labor $sf(\frac{K}{AN})$ are represented by an increasing curve, which successively becomes flatter. Since the production growth becomes smaller with increasing capital input and the labor input also grows less with each unit for a given capital, both factors show diminishing marginal returns. The required investment

per effective labor $\frac{(\delta+ga+gn)K}{AN}$ grows in proportion to the capital stock and is characterized by a straight line.

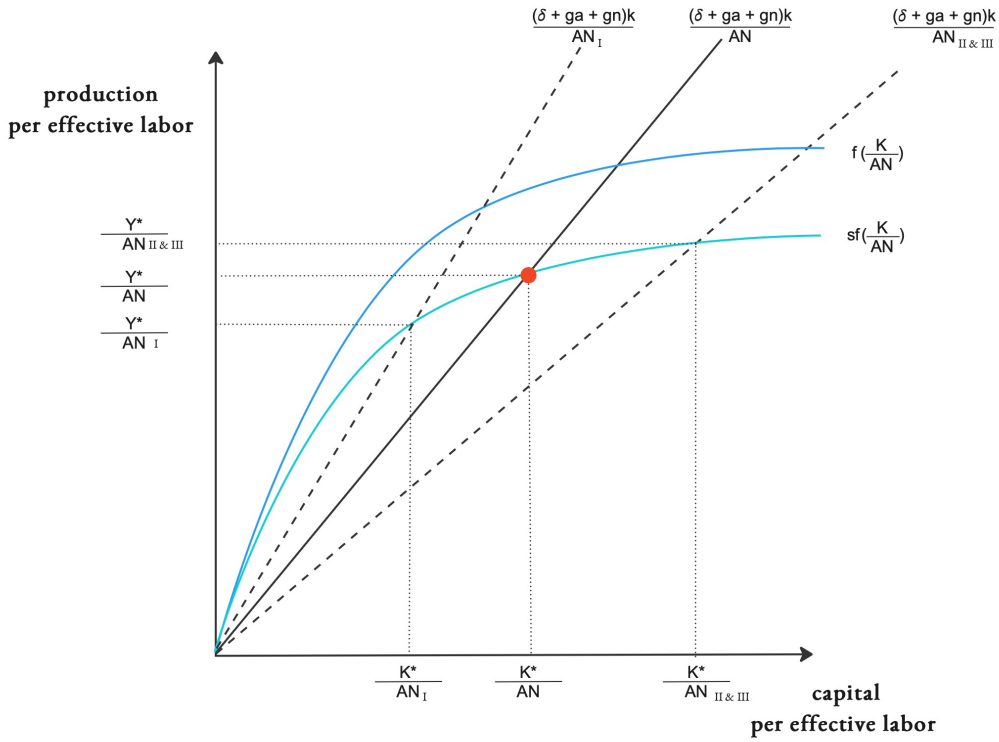

Figure 3 Long-term growth equilibrium in the Solow-Swan model (Own figure based on Blanchard & Illing, 2014, p. 365).

To achieve economic growth, the production function must be shifted upward, either by increasing capital intensity through more investment or technical progress. However, the capital intensity per unit of capital employed increases less and less, so that an increasingly higher capital input is necessary to maintain output growth. Long-term growth can therefore only be achieved through technical progress. Technical progress describes a qualitative improvement of products, new products, or better productivity so that more output can be achieved with given capital and labor. A key component in achieving technical progress is the improvement of human capital. How basic income can affect human capital intensity is examined in Scenarios I and II. Scenario III describes how basic income affects labor productivity through capital appreciation and technical progress.

I. Human Capital Intensity Decreases

If the level of education is considered the determining factor for a good income, then there is a possibility that the level of education of the population will fall, like the case of labor demand.

Here, the basic income gives the impression that a good life is also possible with lower education (Petersen, 2017). This development goes along with upgrading of low-wage professions that make only low demands on the level of education. The decline in the level of education leads to a reduction in human capital, which in turn harms labor productivity. Innovation and technical progress fail to emerge. Under the Solow-Swan growth model, a decline in output per effective worker and a decline in capital intensity can be observed. As a result, the economy shrinks until a new lower equilibrium is reached.

II. Human Capital Intensity Increases

The introduction of a basic income gives people the opportunity to try things out and pursue their interests. Such freedom can lead people to pursue further education and qualifications to apply for new jobs. Basic income can thus unleash undiscovered talent and allow the economy to benefit from new ideas. As a result, new innovations can emerge, which in the Solow-Swan growth model translate into an increase in technological progress and lead to an increase in the required investments. Overall, the economy benefits from growth that reaches a higher steady state.

III. Capital Stock and Technical Progress Increase Labor Productivity

By introducing a basic income, wage pressure on employers is increased, which can lead to wage increases. Such a development can increase the incentive to design work processes with fewer employees. This, in turn, can lead to an increase in capital in production and an increase in labor productivity. Within the Solow-Swan growth model, an increase in depreciation and a growth in technical progress can be observed due to the increase in machinery, which leads to an overall increase in economic growth.

3.1.4 Basic Income Effect on International Competitiveness

Exports in Germany in 2021 amounted to about 47% of gross domestic product (GDP), with an upward trend since 1970 with few exceptions (World Bank, 2023). GDP has a significant impact on the government's available revenues as well as on people's lives. Although GDP does not function as an ideal indicator of well-being because, for example, it does not provide insight into access to important skills and resources as described in section 2.2.4, there is a strong correlation between GDP and other factors that contribute positively to well-being (Bannister & Mourmouras, 2018). In this context, it is relevant to examine the impact of a basic income on exports and

competitiveness. This requires a review of the goods market in an open economy such as Germany. The equilibrium of the goods market in an open economy can be described by the following formulation (Blanchard & Illing, 2014, pp. 552-589):

$$Z \equiv C + I + G + X - IM/\varepsilon$$

The open goods market formula describes that total domestic demand Z is the sum of consumption C, investment I, and government demand G. However, imports IM from abroad must be subtracted, for this purpose these goods must be valued in domestic currency with the exchange rate ratio of foreign to domestic goods expressed as $\frac{1}{\varepsilon}$, while exports X must be added. With this formula, GDP can be determined. An increase in domestic demand with exports unchanged or an increase in exports due to an improved economic situation abroad leads to an increase in domestic demand. In contrast, an increase in domestic costs or an appreciation of the euro lead to a decrease in demand for domestic goods. Imports reduce domestic demand and are therefore subtracted from total demand.

The demand composition is described by three straight lines: The DD line indicates domestic demand, including demand for foreign goods. The AA line shows domestic demand for purely domestic goods, excluding imports. The ZZ line shows the total demand for domestic goods, which consists of consumption, investment, government demand and exports by domestic residents, and foreign demand through exports.

The AA line is flatter than the DD line because higher demand for foreign goods is expected as income rises, leading to an increase in imports and aggregate demand. Domestic demand for purely domestic goods also increases. Exports happen independently of domestic production, so aggregate demand for domestic goods ZZ and domestic demand for pure domestic goods run in a parallel direction. The intersection of the 45° line, which indicates an equilibrium between demand and production, and ZZ curve forms the demand equilibrium. The intersection of the DD straight line and the ZZ straight line describes the equilibrium between imports and exports. The light green area shows the beginning of the trade surplus, and the light red area shows the beginning of the trade deficit.

The possible impact of a basic income as an expansive fiscal policy on total income and an increase in imports due to increased consumption is not considered in this figure. This is because it is also possible for a decline in consumption to occur, as described in 3.1.2. Therefore, this figure

focuses on the change in international competitiveness in relation to the total domestic demand for goods, including exports (ZZ line).

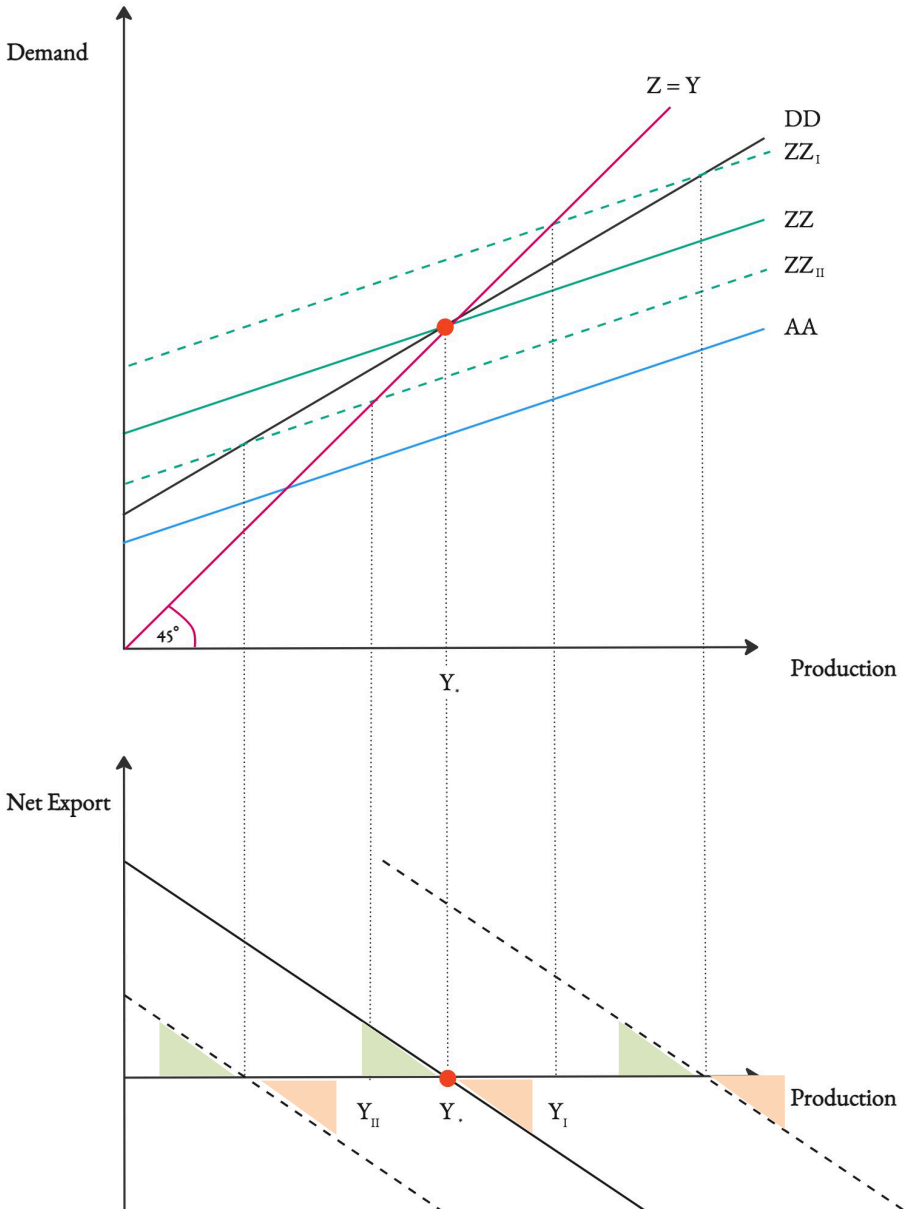

Figure 4 Effect of the change in aggregate demand for domestic goods on the trade balance (Own figure based on Blanchard & Illing, 2014, p. 561).

The automation of production can undoubtedly help to increase productivity and thus increase a country's international competitiveness. At the same time, the introduction of a basic income can drive up the cost of producing goods by increasing labor costs. In this context, two possible scenarios are conceivable (Petersen, 2017).

I. International Competitiveness Increases

The wage increase, as described in scenario III under 3.1.3, motivates companies to increase their labor productivity and reduce their labor input. With technological progress, productivity increases and improvements in production can be achieved that is higher than wage costs and thus lead to an increase in international competitiveness. This, in turn, allows domestic companies to export more products and increase the overall demand for German products. The graphical representation is shown by an upward shift of the ZZ line and an upward shift of the net export curve to the right. The new trade balance equilibrium, the intersection between the ZZ straight line and the DD straight line has shifted to the right and now exists at a higher production level. The intersection between the new ZZ straight line and the 45° straight line shows an export surplus.

II. International Competitiveness Declines

Due to higher labor costs, which cannot be compensated despite productivity increases, a company loses competitiveness if it can neither save on personnel nor reduce prices. This leads to a decline in the share of exports in total demand for domestic products, resulting in an overall drop in demand for domestic products. The downward shift of the ZZ curve leads to a new equilibrium between imports and exports at a lower level of production. The equilibrium between production and demand shifts down to the left, causing the net export line to also shift downward to the left. The decline in exports at a given level of imports leads to a trade deficit, which is represented by the intersection between the new ZZ straight line and the 45° straight line.

3.1.5 Basic Income Effect on Economic Growth

The situation in the labor market (section 3.1.1), aggregate demand through consumption and investment plus the development of inflation (section 3.1.2), the development of the capital stock, in particular the development of the spirit of invention and creativity as human capital (section 3.1.3), and global competitiveness (section 3.1.4) have a decisive influence on the development of economic growth. Steady and appropriate economic growth, which is one of the four goals of the Stability Act (see introduction), will be influenced by the introduction of a basic income. Whether its introduction is therefore desirable is also determined by its implications for growth. Whether the economy ultimately grows depends on whether the growth-enhancing effects of basic income outweigh the growth-hindering effects of basic income (Petersen, 2017).

As a conclusion of the previous research, two scenarios are explained here. A desirable scenario assumes that the introduction of basic income is, on balance, pro-growth, while an undesirable scenario assumes that the introduction of basic income is, on balance, anti-growth. Stagnation is not assumed, since offsetting the effects of the unstoppable fourth industrial revolution and the introduction of basic income will not completely neutralize each other. It is assumed that development will take place in which the basic income development is compatible or incompatible with the fourth industrial revolution.

I. Economic Growth Increases

Even if labor demand decreases due to a lower willingness to work, the production level does not suffer. On the contrary, due to shorter working hours, workers find more rest and are more productive while working (Shangguan et al., 2021), so the effects of shorter working hours are more than offset. The concern that workers would leave their jobs in masses is unfounded, as 87% of workers see meaning in their work (Statistisches Bundesamt, 2020). Increased wage costs because of increased bargaining power further motivate workers to contribute to the company. Not only are existing workers more productive, but the unemployed also find an incentive to contribute to companies, as additional income is no longer deducted when transfer payments are made. The absence of the needs test can motivate the unemployed to contribute their workforce to the labor market (Haywood, 2014). The previously mentioned incentive to reduce fixed labor costs in production costs leads to improvements in labor and production productivity. Price increases due to basic income can thus be counteracted and competitiveness on the international market increases, leading to an increase in exports. As a result, the gross domestic product (GDP) increases sustainably.

II. Economic Growth Decreases

Most German employees work for extrinsic motives. For 72% of employees, the main motive to work is to earn money, while only 11% in second place stated that self-fulfillment is the primary reason (Statista, 2022). The low-wage sector mainly employs people who barely live above the subsistence level and could lose their incentive to work if a basic income were introduced. Therefore, particularly low-skilled workers can be expected to experience a decline in work morale, which can lead to a sharp drop in the output of the economy (Petersen, 2017). This is particularly relevant given that the low-wage sector in Germany made up 21.7% of all jobs in 2018 (Grabka et al., 2020). The improved bargaining position of workers through basic income may not necessarily be beneficial if companies decide to move abroad under wage

pressure, which would lead to a capital outflow. Moreover, the basic income may harm Germany as a high-value-adding manufacturing location in two other ways. First, companies may suffer efficiency losses due to higher wages without direct additional output and thus have less money available for research and development (R&D), which may lead to a worse position in the global value chain (GVC) in the long term. Second, basic income may reduce the pressure on people to adapt to the new demands of the world of work (Schneider, 2017), and more people may turn into an easily replaced workforce. The more people earn their living only from basic income, the more purchasing power is lost, as the level of basic income does not allow for additional consumption. In the long term, this can lead to a decline in gross domestic product.

The growth-enhancing effect of basic income depends primarily on whether individuals use the additional income for consumption expenditure, training purposes, or to adjust their work behavior. For this reason, the following section focuses on the microeconomic effects.

3.2 Microeconomic Implications

3.2.1 Basic Income Effect on Job Preference

In Germany, the main reason people are employed is to earn money. However, other factors also play a role, such as self-affirmation, social contacts, and intellectual challenges (Statista, 2022b). The pursuit of money is an extrinsic motivation that is influenced by external influences, such as the employer. A secure job or the reputation of the job are other extrinsic motives. The other motives are intrinsic motivations that come from the employee's inner attitude. The motivation to go to work comes from a combination of extrinsic and intrinsic motives. Work that fulfills the optimal ratio of extrinsic and intrinsic motives provides the greatest possible benefit for the hours worked. In Germany, statistically, the optimal combination is composed of 72% extrinsic and 28% intrinsic motives (Statista, 2022). This means that German employees prefer higher pay more than work that fulfills them intrinsically.

The Thesis investigation assumes that employees are free to choose the job and choose the job that offers the greatest expected benefits to their personal preferences. The optimal choice depends on the optimal combination of extrinsic and intrinsic motives, the available budget of working hours, and the cost of the job choice, such as the time spent recovering after work.

The basic assumption is that a 1% increase in the proportion of extrinsic motivation means a 1% reduction in intrinsic motivation. The blue indifference curves in Figure 5 show all combinations with the same utility level. The further an indifference curve is from the origin, the higher the utility combination. A job from purely extrinsic motives means that workers perform a completely joyless job, but one that is safer and better paid. Work from purely intrinsic motives means that workers perform completely joyful work, but that may offer no secure source of income and poor or no pay. Thus, it is assumed that people must be compensated for performing work that they do not choose for purely intrinsic motives to do that work anyway.

The introduction of a basic income has an impact on the decision of employees when choosing their job. The proportion of extrinsic motives decreases, and the proportion of intrinsic motives increases in the individual optimal work bundle. This is because basic income provides downward existential protection in the lower-income groups and additional income in the middle and upper-income groups.

Figure 5 shows the implications of basic income as an increase in income, which leads to an increase in the slope of the budget line. This shift moves the old tangent point A to the new tangent point B, with the associated indifference curve showing a higher utility level with a higher proportion of intrinsic motives. In addition, there are effects on wage development and thus on labor input. With a basic income, people seek more joyful work rather than joyless work (Pech, 2010). For example, people switch from a joyless job A such as cleaning (Healthy Work, 2016) to a joyful job B such as a city guide, or choose more projects in companies where the fulfillment of intrinsic motives is assumed (Pech, 2010). As a result, joyless jobs are less in demand, while joyful jobs experience excess demand that cannot be met. The imbalance is reflected in a wage appreciation of joyless work, which is characterized by tangent point C of a higher indifference curve. There is also a wage devaluation of joyful labor, characterized by tangent point D of a lower indifference curve. The dashed extensions of the With Basic Income budget line show these wage upgrades and downgrades (Singh, 2014). In joyless jobs, wage upgrading leads to an increase in job performance (Pech, 2010). The cleaner now cleans more carefully and complies more closely with the contracted work hours. In joyful work, unless the motivation is completely intrinsic, wage devaluation leads to a decrease in work performance. The city guide no longer tells stories with the same motivation and omits historical facts of the city's history. Workers in the joyful employment relationship again perceive extrinsic motives as more important, so that at tangent point D the original higher proportion of extrinsic motives is chosen again. The city guide again looks for work that promises a secure income and works mainly as a cleaner and occasionally as a city guide.

This development illustrates that even joyless work, which is nevertheless needed, can still find sufficient workers by upgrading the wage. On the other hand, joyless jobs that do not bring any actual benefits become so-called "bullshit jobs" (Illing, 2018), which do not experience any upgrading and therefore disappear. Joyful jobs, on the other hand, fall back to their actual demand level.

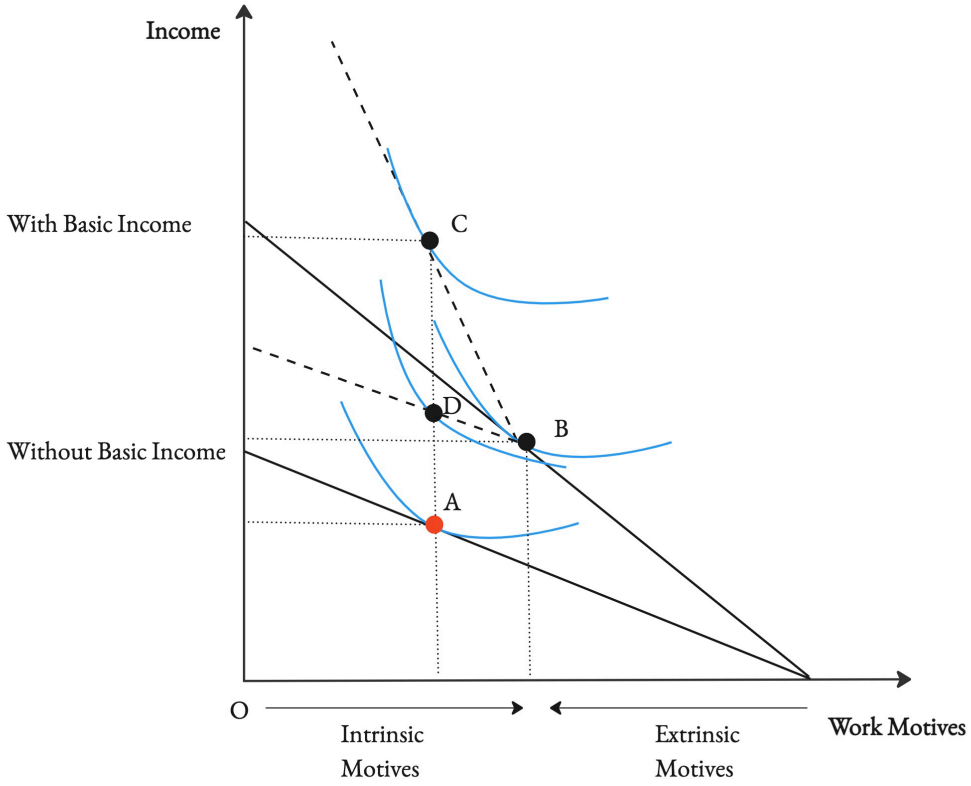

Figure 5 Income changes and work motives (Own figure based, Singh, 2014).

3.2.2 Basic Income Effect on Labor Market Equilibrium and Efficiency Wage

Compared with the macroeconomic scenarios, the development of labor supply and demand from a microeconomic perspective depends on the behavior of firms and workers. As mentioned above, the nature of labor demand changes due to the increased wage-setting power of employees (see 3.1.1). This has implications for the behavior of employers, who are forced to raise efficiency wages to maintain labor readiness and labor input.

Currently, skilled workers and potential apprentices face some bargaining power due to a shortage of skilled workers. For this reason, companies are forced to offer additional incentives besides wages, such as a company car or home office options, to attract qualified workers (Daumann, 2023).

Nevertheless, firms follow workers' wage demands only as long as the benefits in terms of marginal profit are higher than marginal wage costs. This means that wages are increased only to the extent that it is still profitable for companies and the additional costs can be passed on to customers. If this is no longer the case, the efficiency wage increased by the basic income exceeds the labor market equilibrium and there is no longer any market clearing, meaning that there is then a labor supply surplus (Wirtschaftslexikon, 2016). As a result, layoffs may become necessary to offer products at the market-settable price and to meet the wage-setting power to pay the efficiency wage. This leads to an overall increase in the unemployment rate, counteracting the Stability Act's goal of promoting full employment.

However, as the unemployment rate rises, wage-setting power falls, which means that wages can once again be set at the labor market equilibrium. However, the efficiency wage is undercut, which leads to a reduction in labor input or willingness to work (Wirtschaftslexikon, 2016).

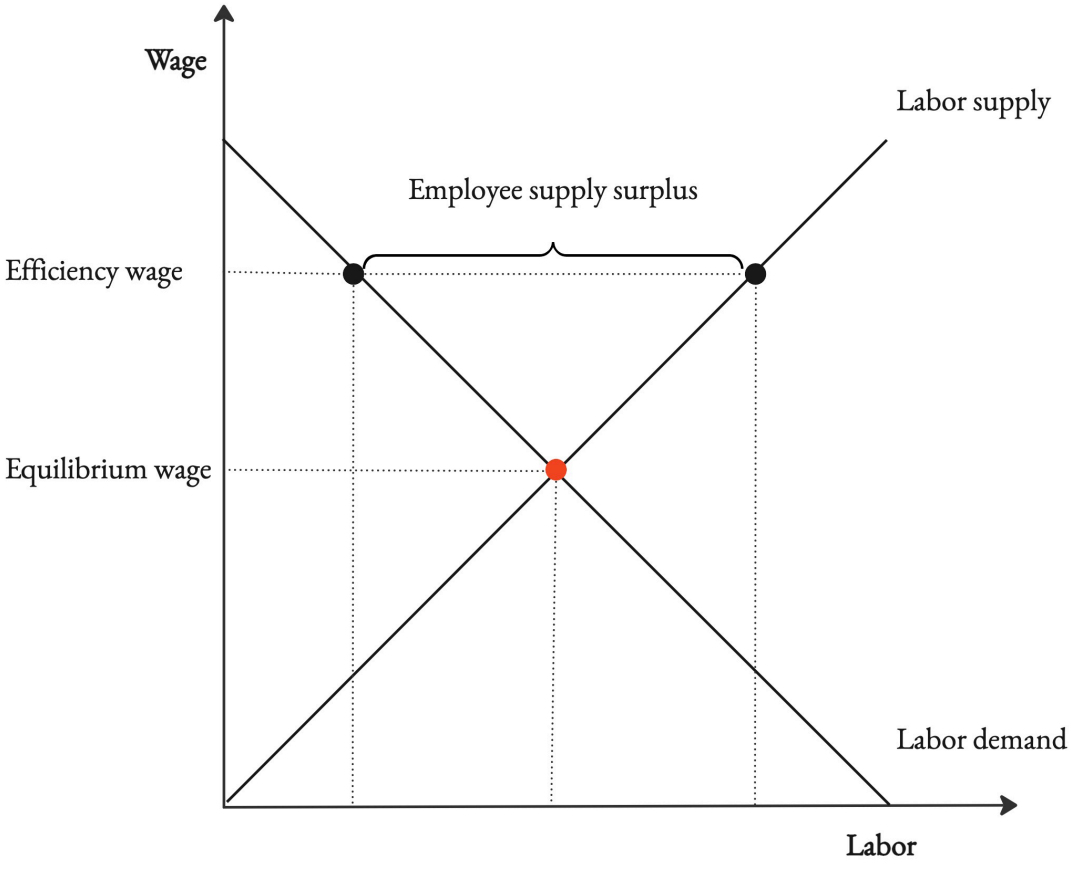

Figure 6 Labor market and the labor supply surplus (Own figure based on Varian, 2019, p. 509).

3.2.3 Basic Income Effect on Food Choices

Due to increased wages and basic income, people experience an increase in income (see 3.1.2), and there is a change in the behavior of the demand for goods. This is because the income effect

influences demand, which additionally leads to an observable substitution effect (Varian, 2019, p. 143). With higher income, citizens prefer superior goods over inferior goods (Varian, 2019, pp. 96-98). This change in demand for goods can lead to improved health, particularly among lower-income groups, as healthier products are generally more expensive than unhealthy alternatives (Kessner, 2007). Disposable household income in Germany is therefore one of the most important factors determining whether people eat a healthy diet (Heinrich-Böll-Stiftung, 2021). If people are aware of which foods contribute to long-term well-being and higher life expectancy, in other words, lead to higher benefits in the long term, then a substitution of unhealthy foods (inferior goods) by healthy foods (superior goods) takes place. Instead of toast, for instance, people buy high-fiber whole-grain bread. Consequently, the quantity demanded for unhealthy foods decreases while the demand for healthy foods increases. If product prices remain constant, this leads to a new optimal demand for goods, which is shown by a shift of the budget line away from the origin and a new intersection between the budget line and the indifference curve. The new intersection point shows higher demand for the superior good and a decrease in demand for the inferior good in the case of increased income.

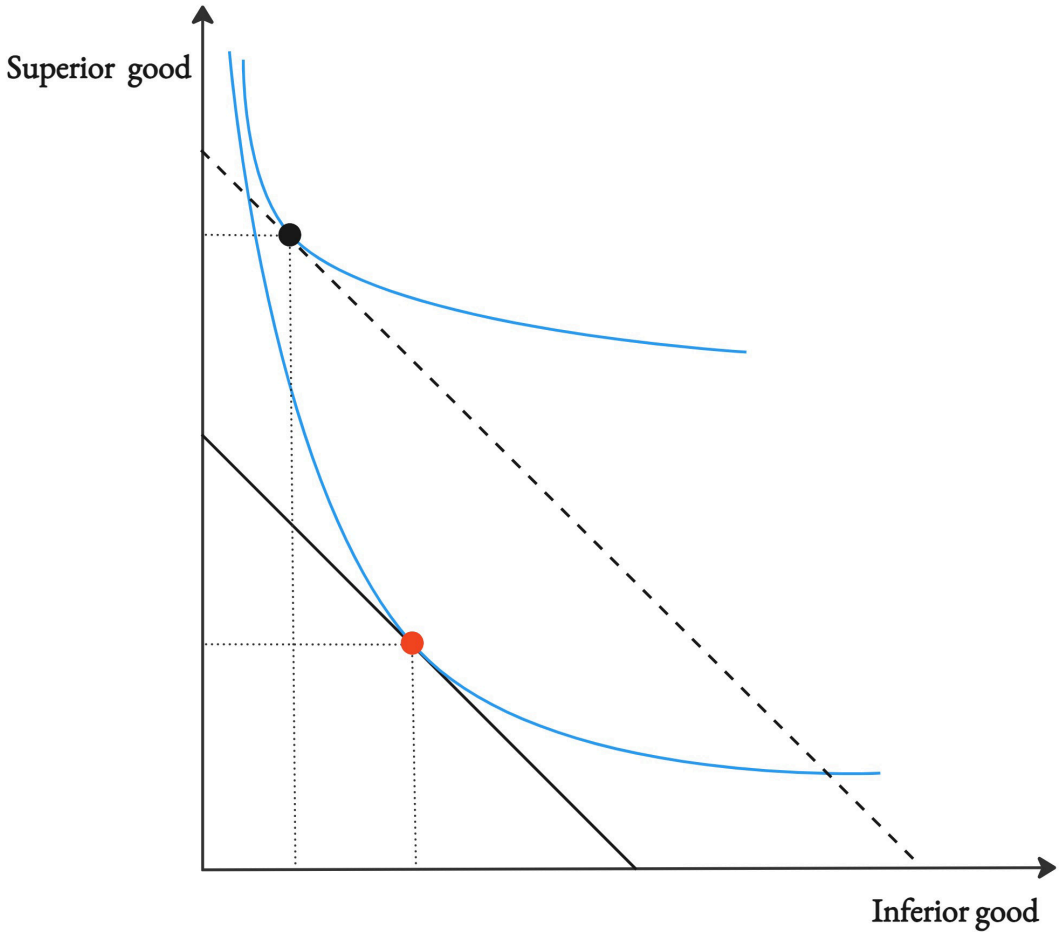

Figure 7 Change in demand for inferior and superior goods (Own figure based on Varian, 2019, p. 98).

4 Conclusion

4.1 Summary

In a public statement of the German Ethics Council (Deutscher Ethikrat, 2023), it was decided that Ai machines must not replace humans because they have neither reason nor a sense of responsibility. However, this decision does not change the trade-off that is examined in this thesis, as Ai can already perform many work processes without a requirement of reason. The German economic system is based on growth and therefore requires increases in efficiency through technical progress. This leads to increased use of automation in the ongoing fourth industrial revolution, which on the one hand leads to a rationalization of many repetitive and monotonous jobs and on the other hand to new jobs that cannot be performed by everyone. This makes the goal of full employment more difficult to achieve and creates groups of winners and losers. Basic income has been studied as a solution to this trade-off.

Philosophically, basic income is desirable from a virtue ethics perspective because it empowers workers in the low-wage sector, gives them the freedom to follow their passions, and improves access to the capabilities defined by Nussbaum as being human. However, the principal *quid pro quo*, is overridden, so it depends on the attitude of the person. Unemployed people need support in getting back into the labor market and are left alone with a basic income payment, so from a consequentialist point of view, basic income, with its target-free payment and the elimination of a need test, is not desirable. In surveys, basic income receives a slim majority of support, but these surveys never asked about financing. In terms of the history of social legislation, the introduction of a basic income seems politically plausible. However, basic income represents a violation of the norm of social justice, which is based on the principles of equality, achievement, entitlement, and need.

There is no empirical data on the introduction of a universal basic income at the national level, so the impact on the economy and society cannot be predicted. The models and scenarios in the macroeconomic section have shown both desirable and negative effects. It is conceivable that Germany would benefit economically from the introduction of a basic income if the productivity gains were higher than the additional costs. However, the probability of a positive outcome depends mainly on the behavior of individuals. The microeconomic part shows a preference shift in the choice of work. Joyless jobs are less in demand than joyful jobs, so a wage appreciation of joyless work is likely to occur. Based on the current shortage of skilled labor in Germany, employers are forced to raise wages and wage-level benefits to attract qualified workers. The same

is expected to happen with the introduction of a basic income, which may lead to a mismatch between efficiency wages and equilibrium wages. If high wage expectations cannot be met, this then can influence labor effort and productivity. Consumer demand for healthy food can be positively affected if people perceive healthier food as superior goods and prefer them over inferior unhealthy goods. The discussion about basic income as a solution to social problems and economic challenges increased significantly in recent years. However, the thesis shows that basic income is not the optimal solution to the trade-off between full employment and economic growth. The introduction of a basic income involves serious economic uncertainty and often amplifies people's existing vices and virtues. There are better alternatives to help people who have lost their jobs due to the expansion of automation. A modern education system can prepare young people for the new labor market. To address exploitation and poor working conditions, legal minimum wages and minimum standards should be increased. It is better to support important work that does not generate income, such as childcare or caring for relatives, in a targeted way through higher care and childcare allowances. In contrast to basic income, the state should further expand and promote manual work such as landscaping and caring for the elderly and lonely that serves society, thus creating new job opportunities for the new "technological unemployment" (Riskbank, 2015, p. 57).

4.2 Limitations of the Basic Income Evaluation

Due to the limited scope of this thesis, important aspects that are relevant for the evaluation of the introduction of basic income as a solution to the trade-off are not considered.

In philosophical evaluation, a coherence check in the form of Rawls' reflective equilibrium is missing. This is necessary to ensure that Nussbaum's non-contractual virtue ethics is indeed always consistent with moral judgments. One remaining question here concerns the applicability of the Capabilities Approach, which is used as a principle for the introduction of a basic income. Is it correct to claim that a basic income improves human beings in all possible scenarios, or is this only the case under certain conditions?

In the economic evaluation, financing has a significant influence on the feasibility and acceptance of the basic income. Popular financing methods such as an increase in income tax or value-added tax or charges on financial transactions can make Germany unattractive as a business location for investment and lead to an increase in the cost of products (Rinke, 2020). In addition, it must be considered that a basic income can act as a pull factor, which could lead to increased immigration. Therefore, not only the behaviors of residents, as presented in this thesis, but also those of foreigners should be considered. The assumption that a basic income strengthens the

bargaining power of workers assumes that it works like a labor market regulation, such as an increase in unemployment benefits. However, whether the bargaining power of workers can be strengthened in the long term needs to be clarified. After all, as the number of technically unemployed increases, the bargaining power gained could potentially be more than offset by the basic income.

Ultimately, the lack of experience with the introduction of a basic income on a national level makes it impossible to make clear statements about whether the introduction of a basic income is also economically and socially desirable.

4.3 Outlooks

The following points can be derived from the results of this thesis: *First*, it is shown that the Stability Act is no longer sufficient given the changes of the fourth industrial revolution, as the progressive development of Ai may lead to stronger trade-offs between goals. *Second*, it becomes clear that advancing automation is of great importance for the German economic system and offers opportunities for future jobs, which, however, cannot be performed by all the existing workforces at this point. *Third*, it is apparent that the introduction of basic income needs to be carefully considered, as the implications are severe both economically and socially. Alternatives such as a guaranteed minimum income if one starts working or a conditional basic income could be a better solution. *Fourth*, the Thesis stresses that it depends on everyone's choices whether the basic income leads to the majority becoming lazy and exerting less effort. The start of laziness can harm the economy, since Germany, as an export-oriented country without many natural resources, is dependent on innovations and new developments to maintain its prosperity. *Fifth*, it is pointed out that the payouts of the unconditional basic income lead to a watering-can-like distribution, where people who do not need the basic income receive it, while people who need it may not be sufficiently supported. Therefore, need tests are necessary for transfer payments to maintain social justice. Legislators should focus on expanding the existing social safety net in line with needs and respond early to the new challenges in labor policies to preserve as many jobs as possible. Work offers not only income but also self-fulfillment and a social position.

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