The effect of the GSP+ policy on poverty

A quantitative analysis of the effect of the EU's General Scheme of Preferences Plus (GSP+) on poverty.

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Abstract

This study investigates the long-term impact of the special arrangement for sustainable development and good governance, the Generalised Scheme of Preferences Plus (GSP+). The policy was implemented by the European Union (EU) in 2005 to encourage development and decrease poverty in developing countries. Participating countries are granted non-reciprocal preferential market access conditional on the ratification and implementation of twenty-seven international conventions. The three main goals of the GSP+ arrangement are to promote good governance, stimulate sustainable development and, ultimately, to reduce poverty. While abundant literature has examined the effect of the GSP+ on good governance and sustainability, existing literature does not examine its overall effect on poverty. This thesis fills this gap by examining the impact of the GSP+ on poverty between 2005 and 2012.

Poverty is operationalized as extreme poverty and is measured by poverty headcount, poverty gap, and, as a robustness test, infant mortality rate. Subject to the analysis are those countries that entered the GSP+ arrangement in its initial launch in 2005 and consistently participated until the end of the first period in 2012, leading to a sample of thirteen beneficiary countries. Those countries are compared to similar counterparts, namely those low- and middle-income countries of the standard generalised scheme of preferences (GSP). Based on fundamental economic theory, it is hypothesized that the GSP+ arrangement decreased poverty. To test this hypothesis, a differences-in-differences (DiD) analysis is conducted. This approach compares the poverty alleviation pattern among the GSP+ beneficiary countries before and after participating in the arrangement to patterns among control countries before and after the program period. Covariates are included to adjust for factors that violate the parallel trend assumption, which is a critical fundament of the DiD method.

The main empirical results demonstrate that the GSP+ arrangement did not have a significant effect on reducing extreme poverty in its beneficiary countries in the period from 2005 to 2012. This is of particular interest since the alleviation of poverty, especially in developing countries, has been a complex and multifaceted task that policymakers have tried to achieve for years. Targeting developing countries through PTAs, even if coupled with extra non-trade-related provisions thus seems to provide an insufficient technique to reduce poverty. However, the results show that complementary policies, especially those focussing on education, access to credit, and political stability and absence of violence are necessary to reduce extreme poverty in developing countries.

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III. List of Abbreviations

CAP	Common Agricultural Policy
DiD	Differences-in-Differences
ECC	European Economic Community
EU	European Union
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GEA	Gravity Equation Analysis
GSP	General Scheme of Preferences
GSP+	General Scheme of Preferences Plus
IMR	Infant Mortality Rate
MDG	Millennium Development Goal
MFN	Most-Favoured Nation
NRPTA	Non-reciprocal Preferential Trade Agreement
NTP	Non Trade Provisions
OLS	Ordinary Least Squares
PMM	Predictive Mean Matching
PTA	Preferential Trade Agreement
RPTA	Reciprocal Preferential Trade Agreement
SDG	Sustainable Development Goal
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organisation

1. Introduction

Progress towards alleviating poverty is at the core of global development policy and research (Santos-Paulino, 2012). Already in 2000, the Millennium Development Goals (MDGs) for the year 2015 defined the eradication of poverty as their first goal. This was further consolidated as the first Sustainable Development Goal (SDG) for the 2030 Agenda, stating the ambition to end poverty in all its forms everywhere (UN General Assembly, 2015). However, even though the international agenda is dedicated to decreasing poverty levels and substantial progress in poverty reduction has been made, the number of people living in extreme poverty remains high. In 2020, extreme poverty, defined as living on less than $1.90 a day, was estimated to affect nine percent of the world's population (World Bank, 2020a). The continuing high number of people living in extreme poverty poses a critical issue that requires sustained national efforts and international cooperation.

The SDGs emphasize the interconnectedness of economic and social challenges, meaning that strategies to address social challenges, such as poverty, are interrelated to economic development. Accordingly, the link between economic and social goals has gained increased attention in recent years. Both academics and policymakers have increasingly emphasized the benefits that international trade can have for developing countries. The fundamental idea is that international trade increases exports of developing countries which, in turn, encourages economic development and poverty reduction. However, globalisation is often said to have substantial gains for large and developed countries at the expense of smaller, less developed countries (McQueen, 2007). Therefore, developing countries have argued that the benefits of international trade cannot be reaped by them and have expressed their demand for more equitable trade rules. In 1958, the United Nations Conference on Trade and Development (UNCTAD) recommended creating the so-called 'Generalised System of Preferences' (GSP), which are non-reciprocal trade agreements offered by industrialised countries to developing countries (Bandara & Naranpanawa, 2015). Those preferential trade agreements (PTAs) aim to support vulnerable countries by enhancing growth, more efficient resource allocation, and welfare gains.

The nature of PTAs, as they exist today, varies considerably. The type of their membership, policy coverage, and depth and breadth are diverse and constantly changing. Thus, the definitions of PTAs tend to be rather broad to encompass this diversity. Still, in their

most basic form, all PTAs are trade policies that aim to increase market access for at least one country. Limão (2016) defines PTAs as "an international treaty with restrictive membership and including any articles that (i) apply only to its members and (ii) aim to secure or increase their respective market access" (Limão, 2016, p. 284). The first point of the definition (i) establishes the discriminatory nature of the PTAs, meaning that preferential access is only permitted to member states in the agreement. The definition further denotes that PTAs are an exception to the most favoured nation (MFN) principle.

A common trend in worldwide PTAs is that they are becoming more profound over time, meaning they increasingly include non-trade-related policies (Hofmann, Osnago & Ruta, 2019). While before 1990, the focus of PTAs was solely on tariff reductions, they have evolved to include additional provisions covering policy areas that go beyond trade-related issues, so-called non-trade provisions (NTPs). For example, PTAs increasingly include NTPs related to human rights, democracy, or the environment. This development is included in the definition provided by Yoo, and Kim (2016), who define PTAs as international institutions that oblige participants to follow a set of rules of diverse fields. This definition recognizes the commitments that signees agree to follow in exchange for greater market access.

The European Union (EU) has been a forerunner in applying PTAs to enhance exports and support the development and poverty reduction of emerging economies. EU trade preferences date back to the Treaty of Rome and the creation of the European Economic Community (ECC) in 1957 (Cirera, Foliano, & Gasiorek, 2011). Nowadays, the GSP is a key part of the EU's trade strategy as it gives developing countries access to the EU single market (Bilal, Ramdoo, & de Roquefeuil, 2011). It aims to encourage trade and support developing countries in their effort to achieve economic development. As part of the GSP, in 2005, the EU established a special arrangement for sustainable development and good governance, also known as the General Scheme of Preferences Plus (GSP+). This scheme grants additional tariff preferences to vulnerable countries committing to implement 27 conventions on human and labour rights and good governance (European Commission, 2015). Therefore, GSP+ has the potential to advantage its beneficiaries in more than trade creation, with the broader goal of alleviating poverty and encouraging sustainable development and good governance (European Commission, 2020a).

PTAs, however, are subject to considerable criticism and challenges. Also the GSP/GSP+ have been controversial since their initial implementation (Zhou & Cuyvers, 2012). Critics argue that the GSP+ inhibits developing countries from using their comparative advantage because agricultural and textile products are excluded from tariff reductions (McQueen, 2007). Further, the substantial amount of resources that have to be invested by developing countries to implement the conventions imposes countries to ample costs and creates a burden for development (Kishore, 2016). Thus, it remains controversial whether the GSP+ stimulates sustainable development or merely serves as a protectionist tool that advances the agenda of developed countries.

This thesis aims to contribute to the existing literature about the effectiveness of the GSP+. Effectiveness is a broad term that entails diverse aspects, of which many have been examined in previous literature. Abundant literature has studied the effectiveness of the GSP+ on human- and labour rights standards or the environment. Also, numerous studies have analysed the impact of the GSP+ on trade creation. However, while this covers two of the three overarching goals, there is a gap in the literature examining the impact of the GSP+ on poverty. Therefore, this thesis aims to fill this gap by assessing the following research question:

To what extent does the GSP+ affect poverty levels in its beneficiary countries?

1.1 Relevance

This research is relevant both for academics and for policymakers. This relevance is established at the hand of the definition of Lehnert, Miller, and Wonka (2007), who divide the relevance of studies in social science into two dimensions, namely theoretical relevance and social relevance.

1.1.1 Theoretical relevance

Studying the impact of the GSP+ on poverty contributes to theoretical literature in two main aspects. First, this thesis empirically tests the so far untested hypothesis of the impact of the GSP+ on poverty alleviation in developing countries. To the best of the author's knowledge, this study is the first attempt to rigorously assess the impact of the GSP+ on poverty in

beneficiary countries. Thus, this thesis will fill this gap in empirical literature as it will contribute evidence of the impact of the GSP+ on poverty reduction.

Second, the study contributes to the wider discourse of the effect of PTAs on poverty. Even though progress towards alleviating poverty is at the centre of global development research (UNCTAD, 2013), the impact of PTAs on poverty reduction is a topic in the literature that has gained only limited attention. The scarcity of evidence regarding the effect of PTAs on poverty has encumbered an understanding of effective policies to decrease poverty in developing countries. Hence, the present study contributes to the broader body of literature examining the effectiveness of PTAs and their impact on poverty.

While it is not possible to generalise the findings of this study to other PTAs, it still contributes valuable insights. First, by analysing one of the many PTAs, this paper provides a suitable methodology to measure the causal effect of trade policy on poverty measurement, which can be applied and extended to similar policies in the future. Second, this paper provides central insights into the importance of the policy surrounding and its mechanisms, which can be expected to be similar in other trade policies. Thus, the study delivers valuable insights to academic literature investigating the effect of PTAs on poverty.

1.1.2 Societal relevance

As argued before, the importance of alleviating poverty has been acknowledged already many years ago. Defined as the first goal of the SDGs, the eradication of poverty is at the centre of the international development agenda. As previously mentioned, PTAs are a promising tool to promote sustainable development and reduce global poverty levels. Thus, the present study is relevant for the renewed prominence of PTAs as a tool to achieve the first SDG and the discussion about how PTAs are to be designed to maximise their effect on developing countries.

Further, societal relevance is based on the fact that people are affected by the outcomes of this study (Lehnert et al., 2007). For this study, this is undoubtedly given. Whether the GSP+ alleviates poverty is essential for many developing countries, either the current GSP+ beneficiaries or possible applicants. Since beneficiaries are subject to substantial costs, those countries need to evaluate whether it has a beneficial impact on poverty alleviation. Also, whether the poor are benefiting or not has important implications for policymakers in

developing countries since they must respond to the effects of the GSP+ and implement appropriate policies.

Additionally, this study has important implications for the EU. The GSP+ policy is subject to considerable criticism so that this study will provide new evidence to the debate. By analysing the impact of the GSP+, this thesis contributes to an understanding of how the GSP+ affects poverty in beneficiary countries. The insights from this study are to be integrated into European policymaking to increase the effectiveness of the policies. This has further relevance for the EU since the effectiveness of their policies directly impacts the EU's reputation.

In summary, this study delivers valuable insights for both academic and practice. On the one hand, the effect of PTAs on poverty reduction is an under-researched area, and this study fills this gap in the literature. On the other hand, the lessons learned from this study are important for policymakers in the EU and developing countries to formulate policies effectively and to nations participating in PTAs. A deeper understanding of PTAs and the channels through which they affect poverty are of great relevance for current and future policymakers and society.

1.2 Outline of the thesis

This paper proceeds as follows. First, the next section will provide an overview of the GSP+ policy. Second, the existing literature about PTAs and poverty and, more specifically, the existing literature evaluating the GSP+ policy will be reviewed. Third, the conceptual framework for this study will be established based on theories and empirical evidence about the link between PTAs and poverty. Fourth, the research design and the methods applied will be outlined, followed by a description of the data. Fifth, the results of the study will be presented, and discussed.

2. The GSP+ policy

2.1 Historical background

The origins of the GSP predate to the 1960s. The first step towards creating preferences was when developing countries expressed criticism of the General Agreement on Tariffs and Trade (GATT) for its principle of reciprocity (Kishore, 2016). Developing countries argued that reciprocity could not be maintained for unequal countries and, thus, demanded facilitated market access to industrialized countries through non-reciprocal trade agreements (NRPTA) (Duran, 2012). As a result, in 1958, the United Nations Conference on Trade and Development (UNCTAD) advised the creation of the GSP, offered by industrialised countries to developing countries (Bandara & Naranpanawa, 2015). In 1971, this resulted in a GSP waiver and the introduction of the so-called *Enabling Clause*, which permitted the violation of the Most-Favoured-Nation (MFN) principle.

The EU was the first to realise preferential access in 1971 and can be said to be a forerunner in preferential trade for developing countries (Dür, 2008). However, the GSP was initially focused solely on economic aspects. Following, the GSP has undergone continuous reforms in both country and product eligibility (McQueen, 2007). The reforms can be distinguished into three main waves: from 1971 until 1994, from 1995 to 2005, and the last following 2005 to 2013. Over time, the EU introduced NTPS to its preferential access to stimulate export growth and to encourage sustainable development and poverty reduction (Zhou & Cuyvers, 2012).

Another reform of the GSP took place in 1998 when the EU included the 'GSP Drug Regime', providing additional benefits to developing countries involved in the fight against the production and trafficking of narcotics (Bartels, 2007). However, the World Trade Organisation (WTO) judged this drug arrangement as not meeting the necessary criteria and consequently ruled that the Drug Regime violated international trade law. In response, in 2005, the EU replaced the Drug Regime with a new arrangement known as the GSP+ arrangement. Under the GSP+ policy, vulnerable countries are granted additional tariff preferences, conditional on the implementation and ratification of 27 conventions on human- and labour rights, the environment, and good governance. The GSP+ has also undergone several reforms and the last major reform took place in 2013.

Nowadays, under Council Regulation No. 980/2005, the preferential regime of the EU's GSP arrangements consists of three parts. The general arrangement of the GSP, the special incentive arrangement for sustainable development and good governance, the GSP+, and the arrangement for least developed countries, the Everything But Arms (EBA) initiative (European Commission, 2015). This thesis will focus on the GSP+ arrangement.

2.2 Objective of the GSP+

"By providing preferential access to the Union market, the scheme should assist developing countries in their efforts to reduce poverty and promote good governance and sustainable development by helping to generate additional revenue through international trade, which can then be reinvested for the benefit of their own development and, in addition, to diversify their economies."

(Regulation (EU) No 978/2012 of the European Parliament and of the Council, 2012, p.2)

As the previous quote states, the underlying rationale of the GSP+ is that through reduced tariffs, the EU becomes a key export market for the products of developing countries (European Commission, 2004). As emerging economies usually have a small domestic market, the facilitated access to the EU single market substantially increases demand for developing countries' products. This can increase productivity due to economies of scale, which generates economic growth (Hvidt Thelle, Jeppesen, Gjodesen-Lund, & Van Biesebroeck, 2015a).

Yet, the second part of the quote indicated that the objectives go beyond encouraging economic growth. The GSP+ acts as an incentive-based mechanism, aiming to achieve its goals by applying a 'carrot and stick' mechanism. The carrot is the preferential market access, and the stick is the condition of the implementation and ratification of the 27 conventions. With this mechanism, the EU hopes to gradually improve human and labour rights, sustainability, and good governance and, ultimately, reduce poverty in participating countries (European Commission, 2015).

2.3 Criticism

The GSP has been highly contested since its implementation. While economic literature has established the consensus that eliminating tariffs creates economic development (Cuyvers & Soeng, 2013), others condemn the GSP/GSP+ for ineffectiveness in achieving sustainable development and poverty alleviation (Freres & Mold, 2004; McQueen, 2007).

A central critique is that the EU is just protecting itself and that developing countries have only limited, if any, benefits. The concern has been raised that EU trade policy is not created to benefit developing countries but mainly focused on self-interest and internal goals. A central point supporting this argument is that the EU remains tariffs in the agriculture and textiles sector, inhibiting developing countries from exploiting their comparative advantage (McQueen, 2007). Academics often refer to the Common Agricultural Policy (CAP) of the EU, which is argued to be a defensive measure of the EU to inhibit developing countries from exploiting their comparative advantage in agriculture (McQueen, 2007; Hvidt Thelle, 2015a). Freres and Mold (2004) add to this that the GSP/GSP+ is a policy with merely a symbolic benefit of appeasing the complaints about a lack of access of developing countries to developed economies. Additionally, the policy is criticised for its 'one size fits all' strategy, with the risk of deteriorating the quality of trade due to a non-natural shift of economic production towards those sectors where preferential access exists and away from sectors where a country has a long-term comparative advantage (Freres & Mold, 2004).

Second, the requirement of the rules of origin is said to damage undiversified developing countries because their domestic industries are dependent on imports for intermediate products (McQueen, 2007). Due to a lack of domestic sourcing possibilities, underdeveloped countries require imports of capital and intermediate goods, which is prohibited under the rule of origin (Freres & Mold, 2004). Consequently, developing countries are constrained in the extent to which they can benefit from preferential access. The rule of origin mechanism is further criticised for imposing high costs for the developing countries because it requires costly procedures to prove the origin of products. The high cost of documentation and accounting system could exceed the benefits of preferential access (Tanaka, 2019).

The third critique concerns the mechanism of graduation. Some argue that the graduation principle defeats the purpose of the GSP, as countries that gained competitiveness are 'punished' for this with the loss of preferential access (Freres & Mold, 2004). Further, criticism also concerns the frequency of revisions of the rules (every three years), which is argued to expose developing countries to uncertainty, meaning that countries cannot rely on the GSP+. The uncertainty therefore limits the potential benefits they can gain. This is, however, counter-argued by the EU, stating that graduation is not a punishment but rather a

sign of success (European Commission, 2004). The debate about the graduation mechanism is highly contested and far from conclusive.

3. Literature review

In this chapter, the existing literature investigating PTAs and their impact on poverty will be discussed. The first part will present the body of literature investigating the effectiveness of PTAs and the link between PTAs and poverty. Second, the literature studying the success of the GSP+ policy and the effect on poverty will be described.

3.1 Effectiveness of PTAs

In many developing countries, preferential trade has become a pivotal instrument to stimulate economic growth and reduce poverty (Chauffour & Maur, 2011). The unprecedented proliferation of PTAs has incited theoretical and empirical work to examine their effectiveness. However, no distinct framework explaining the relationship between PTAs and poverty exists (te Velde, 2017). Yet, two main channels through which PTAs can affect non-trade-related outcomes, such as poverty, are given (Ferrari et al., 2021). First, PTAs can impact poverty through their indirect effect on trade flows. Second, the NTPs included in the PTA can affect the poverty outcome because it contains provisions that beneficiary countries must implement.

3.1.1 PTAs and trade volumes

The vast majority of existing literature has explored the impact of PTAs on trade flows rather than examining a direct effect on poverty. The literature on preferential trade dates back to at least Viner (1950), who observed the static effects of trade. He suggests that regional integration can be either trade creating, meaning that trade replaces domestic production, or trade diverting, meaning the production of a partner country replaces trade from the rest of the global competition.

Following, many studies have performed gravity equation analysis (GEA) to estimate the effect of PTAs on trade flows. Gravity models produce a counterfactual that shows what the trade outcome would have been without the PTA. As one of the first studies, Tinbergen (1962) performed a GEA and found that PTAs do not significantly affect trade flows. Following his methodology, a large body of literature has applied the GEA to cross-sectional

data to estimate the effect of PTAs on bilateral trade flows. As such, Estevadeordal and Robertson (2004) performed a GEA to assess the impact on bilateral imports and find that preferential tariffs have a substantial effect on bilateral trade.

Similarly, Martinez-Zarzoso, Felicitas, and Horsewood (2009) evaluated the effect of PTAs on trade using a static and dynamic GEA. Their results show that the model is robust and that the wave of PTAs that emerged in the 1990s had a significantly positive effect on trade volumes. This effect was more significant for developed countries than for developing countries. Further, Egger, Peter and Pfaffermayr (2004) also used the GEA and found that PTAs do not significantly affect trade flows in the short-term. However, the findings show that, in the long-term, a significant increase in trade volumes is found.

In contrast, more recent studies have criticised that the earlier body of literature has underestimated the effect of PTAs on trade. For example, Baier and Bergstrand (2007) demonstrate that previous studies ignored the endogenous self-selection bias of countries into PTAs and underestimated the effects on trade volumes. Their results show that PTAs doubled the bilateral trade flows between two members if those factors are integrated into the analysis. Correspondingly, Egger, Larch, Staub, and Winkelmann (2011) criticise existing literature examining the effect of PTAs on trade flows for econometric inaccuracies. The authors perform a general-equilibrium-consistent estimation of the effects of PTA membership on bilateral trade flows, using cross-sectional data for the year 2005. They argue that studies focusing on PTA's effects on average trade flows, as has been done in most previous studies, are erroneous. Specifically, the findings show that models including PTAs as endogenous result in trade flow estimations which are about 188 percentage points higher than models assuming PTAs to be exogenous, thus supporting the findings of Baier and Bergstrand (2007).

In summary, the existing body of literature examining the effect of PTAs on trade creation suggests a significant positive relationship between PTAs and trade volumes, at least in the long term. Nevertheless, the increased volumes of trade do not automatically translate into poverty reduction. Thus, the second part of the relationship, from increased trade volumes to economic growth and poverty reduction, must be examined separately.

3.1.2 PTAs and poverty

Many developing countries have adopted PTAs to increase economic growth and reduce poverty. While the positive relationship between trade and economic growth is well accepted in the academic and practical field, the impact of trade on poverty is still ambiguous.

Even though economic activity is necessary, it alone is insufficient to alleviate poverty (Froman, 2016). For example, preferential trade could increase economic growth, but the distribution of incomes could benefit only the rich. This would worsen inequality and negatively affect relative and absolute poverty levels (Bannister & Thugge, 2001). The importance of inequality in the relationship between trade and poverty has, in early literature, been often overlooked (Ferreira, 1999). In the late 1950, the consensus was based on Kuznet's inter-binding U-curve, which states that, as an economy grows, inequality first increases and then decreases (Kuznets, 1955). This states that with vast economic growth, inequality and poverty decrease. However, in the late 1970s, the fact that despite the high growth rates, unemployment and poverty sustained, raised doubt about traditional theoretical explanations. A study by the World Bank (2005) found that during the 1990s, trade liberalisation has stimulated rapid economic growth that has translated into reduced poverty levels but increased inequality, fulfilling part of the expectations.

Many more recent studies have assessed the direct impact of trade liberalisation on poverty. Substantive recent literature demonstrates that, in the long-run, economic growth can reduce poverty levels. As such, Dollar and Kraay (2002) find that average incomes of the poorest fifth of an economy rise proportionately with average incomes of the economy in a sample of 92 countries. This evidence shows that economic growth is important for reducing absolute poverty, measured as real per capita income. Yet, the relationship between growth and poverty is not straightforward, and the elasticity varies between countries and poverty measurements, based on the institutional environment and country-specific characteristics (Bourguignon, 2003).

Casabianca (2016) investigated the distributional impacts of multilateral and preferential trade liberalisation on the welfare of households in Paraguay. Applying the general computable equilibrium (CGE) framework, the study finds that households can benefit from trade liberalisation but that it depends on the type of liberalisation policy that is implemented. The results show that multilateral trade has larger benefits for the poor than preferential trade.

Therefore, trade policy cannot be assumed to alleviate poverty per se. Instead, the government needs to establish a supportive policy environment with a favourable social and economic setting to transform the trade policy into inclusive and sustainable development.

Economic theory suggests that trade leads to poverty reduction in developing countries because it creates more employment opportunities, especially for low-skilled labour. However, some studies have found opposite results. A key obstacle is that for trade to increase incomes of the unskilled, they need to be mobile to move from contracting sectors to expanding sectors (Le Goff & Singh, 2014). Yet, empirical results show that this does not hold in reality since labour is not mobile enough in developing countries (Davis, 2006; Topalova, 2007). Krueger (1983a) investigated various case studies and finds that developing countries' exports required, in fact, intensive low-skilled labour. Yet, the study did not find any significant effects of trade on employment opportunities.

Corong, Reyes, and Taningco (2010) applied the CGE model to analyse the impact of preferential trade liberalisation. The findings suggest that the poor benefit from trade and especially unskilled household groups, such as agricultural or industrial workers, gain from PTAs. Specifically, the poor are shown to benefit from lower consumer prices. Yet, the authors emphasize the importance of the combination with supportive policies by the government.

On the other hand, a number of studies found that PTAs do not have a beneficial impact on the poor and can even negatively affect them. A point that the existing body of literature overlooked is the analysis of how the poor make use of the export opportunities. A key finding in this is the absorptive capacity of the poor and also the pace and the pattern of growth. For example, Carter and Barham (1996) found a substantial discrepancy in the impacts of agricultural exports on growth and inequality in Latin American countries. The authors observed that small farmers have seldom received the benefits of the increased exports and that most of the rural poor could not benefit from the PTA.

Another stream of literature found that trade may not be pro-poor in the short term but that in the long-term it can reduce poverty. An important finding in the literature is that trade and poverty are related in a U-shape. Agènor (2004) finds that at first, trade liberalisation leads to a decrease in outputs of sectors competing for imports. In the long-term, the output is increasing due to the development of the export sector. Similar results are presented by Liang

(2006), who examined the trade-poverty relationship in China using endogenous threshold regression techniques. The results show that trade liberalisation is poverty reducing only after the economy has reached a certain level of globalisation.

The review of the existing body of literature shows that literature is far from conclusive about the effects of PTAs on the welfare of the poor. The relationship between trade and poverty is so complex that it is difficult to find systematic empirical evidence. Turner, Nguyen and Bird (2008) claim that the relationship between trade and poverty is case-specific and that finding results on a global level is problematic. However, when examining the findings of studies investigating specific policies, what is apparent is that most refer to the importance of the policy environment and complementary policies. Increased trade volumes do not automatically translate into poverty reduction. Rather, governments need to provide complementary policies to enable the poor to benefit from the opportunities offered.

3.1.3 NTPs and poverty

The continuous high level of poverty, despite economic growth in many developing countries, has caused Meier and Stiglitz (2001) to argue that it is clear that the PTAs must be combined with supportive policies to effectively reduce poverty. Economic and social policies that lessen income inequality, enhance employment opportunities and human capital accumulation, and deliver safety to the most vulnerable are necessary to achieve pro-poor growth. A study of the European Commission demonstrates that exports do not have in themselves a significant impact on poverty outcomes but that that trade may be an engine for poverty reduction if combined with a supportive policy environment (Hvidt Thelle et al., 2015a).

Several studies have emphasised the significance of complementary policies in reducing poverty. As such, Winters, McCulloch, and McKay (2004) advocate that for trade to decrease poverty, a combination with appropriate policies and a supportive institutional environment are required. Especially those policies regarding investment, effective conflict resolution, and human capital accumulation are essential. The authors argue that a key problem in existing literature is that linear regression models, which most studies apply, do not capture such complementary policies or institutional settings in estimating the effect of trade on poverty, which biases the results. This has also been confirmed by Rodriguez and Rodrik

(2001), who criticized early literature for failing to distinguish between trade openness and complementary policy reforms.

Further, Newfarmer and Sztajerowska (2012) stress that trade liberalisation entails the constant reallocation of resources to most productive sectors and that the poor may suffer from this. Accordingly, complementary policies must ensure the protection of workers, high-quality conditions, and simplification of labour transitions. Ferreira, Leite, and Ravaillon (2010) observed the relationship between fast economic growth and enduring high poverty rates in Brazil. They find that the unequal pattern of growth and the limited ability of the poor to participate in economic activity prevent poverty rates from decreasing.

3.2 Effectiveness of the GSP+ policy

After examining existing literature about the relationship between PTAs and poverty in general, this subchapter will investigate findings of the effectiveness of the specific GSP+ policy. Overall, only very few studies have examined the effectiveness of the GSP+, and especially little investigated the effect of the GSP+ on poverty. However, some studies have analysed similar topics of the GSP+ that provide valuable insights and, thus, prove relevant for this thesis. These will be elaborated on in the following.

Bandara and Naranpanawa (2015) analysed the effect of the withdrawal of the GSP+ status from Sri Lanka on the country's garment industry in 2010. The garment industry plays a key role in Sri Lanka since it creates substantial employment opportunities. The results of the study demonstrate that the removal of the GSP+ exacerbates poverty and income inequality in Sri Lanka. Precisely, GDP, employment, export earnings, and household incomes have all decreased substantially following the removal of the GSP+. The findings imply that the GSP+ has delivered substantial benefits to the Sri Lankan poor.

Wong (2010) analysed the expected impact of changes in Ecuadorian trade policies through their effects on prices, wages, employment, and macroeconomic performance. The results estimate that the GSP+ would lead to a 9.22 percent reduction in poverty and a 4.3 percent reduction in extreme poverty. The author attributes those effects to increased employment opportunities for rural unskilled workers, the fall in consumer prices, and the increase in wages and earnings for rural and urban workers.

Several studies have further examined the impact of the GSP+ on Pakistan. The findings, however, are ambiguous. As such, Awan, Sarwar, and Siddique (2015) analysed the impact of the GSP+ on Pakistan's textile exports. The findings show that the GSP+ has substantially increased textile exports. The authors assign this to the role of the GSP+ in its beneficial effect on the competitive advantage of Pakistan over non-GSP+ counties in the Asian industry. Furthermore, Iqbal, Anwar, Mukhopadhay, and Khan (2017) researched the impact of the GSP+ on household incomes in Pakistan. Using the CGE model, the authors find that the GSP+ positively impacts Pakistan's change in real Gross Domestic Product (GDP), merchandise imports, and terms of trade.

On the other hand, Khan, Walmsley, and Mukhopadhyay (2021) used real data on PTAs in Pakistan to study whether expectations based on trade theories are observable in actual existence. Specifically, the authors analysed trade liberalisation, measured by several PTAs, and the effect on household incomes and income inequality. As such, the authors studied the effect of the GSP+ on income inequality. The results present that the GSP+ has led to a considerable increase in income inequality, despite the increase in GDP and welfare. The authors expressed their wonder and concern about these findings and refer to the expected benefits due to the higher labour and human rights standards following the ratification of the GSP+ conventions. They conclude that increased exports in the textile sector help poorer non-farming and urban households but are insufficient to lower income inequality. Additionally, they argue that supporting agriculture is essential for reducing income inequality.

Sarvananthan and Sanjeewanie (2008) studied to what extent the GSP+ has promoted sustainable development and reduced poverty in Sri Lanka, comparing the year 2002 to 2007. Their results demonstrate that the GSP+ has barely impacted poverty reduction or sustainable development, both at the macroeconomic and the microeconomic level. Based on those findings, the authors conclude that the GSP+ has failed to achieve two of its three objectives; sustainable development and poverty reduction.

Overall, the review of the literature shows that most studies have examined the effectiveness of the GSP+ on a country level. While the majority tested the effect on exports and trade volumes, some studies tested to what extent the GSP+ decreased poverty. Yet, those studies were performed solely for one specific country. Therefore, no conclusions about the

overall effectiveness of the GSP+ in poverty reduction can be drawn. This presents a gap in the literature, which this study aims to fill.

4. Hypothesis development and Conceptual Framework

This thesis aims to assess the impact of the GSP+ on poverty levels in its beneficiary countries. The previous chapter has shown that trade affects poverty through many different channels. Based on those findings, the following chapter establishes the conceptual framework to examine whether the GSP+ policy has reduced poverty.

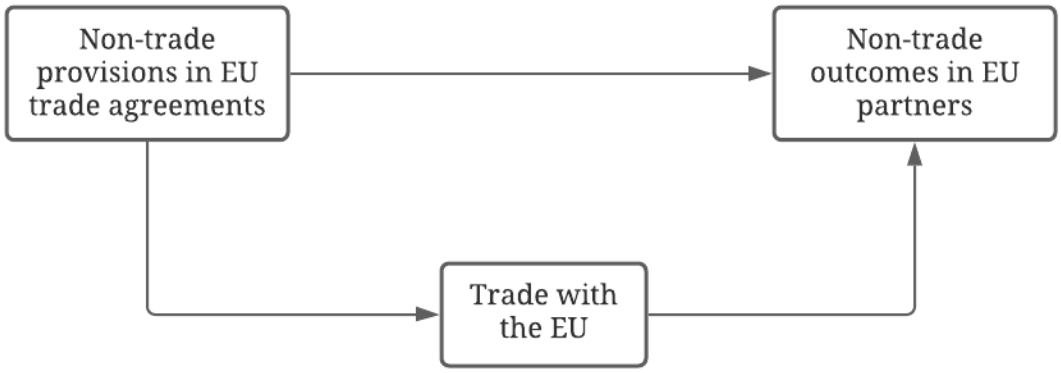
4.1 Overarching theory of the effect of PTAs on poverty

Because PTAs often go beyond trade-related objectives, simply examining explanations for the relationship between trade liberalisation and poverty is insufficient for a thorough understanding of the effect of PTAs on poverty. The individual channels through which PTAs can impact poverty levels need to be examined more thoroughly.

As the previous section has explained, NTPs of PTAs can either directly or indirectly impact poverty outcomes. Ferrari et al. (2021) provide a framework for the channels through which EU's PTAs may impact poverty outcomes in participating countries. Figure 1 depicts that, first, the NTPs can directly impact non-trade outcomes, which is poverty in this case. On the other hand, NTPs can lead to increased trade volumes, which indirectly impacts poverty levels.

Figure 1.

Impact channels of PTAs on non-trade outcomes



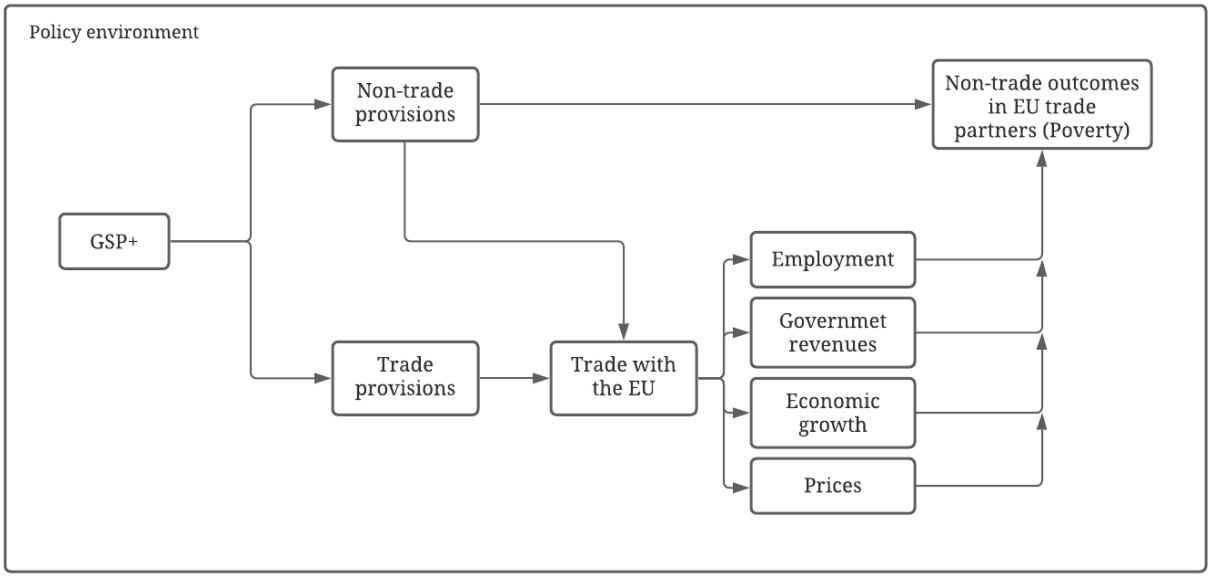
Note. Retrieved from Ferrari et al., 2021

This theoretical framework constructs the fundamental idea of how NTPs of the GSP+ may impact non-trade-related outcomes, in this case poverty. Yet, the framework is relatively broad and does not specify the individual mechanisms that may influence the relationship. Therefore, the following section will dive deeper into the theoretical mechanisms that explain the mediating relationship between the GSP+ and poverty.

Figure 2 builds upon Figure 1 and depicts the extension of the framework of Ferrari et al. (2021), which is developed by the author of this thesis based on existing literature, and presents the foundation of this study. The framework presents the overall relationship through which the GSP+ can impact poverty. Generally, the GSP+ provides non-trade provisions and trade provisions, which both impact poverty. First, the GSP+ can directly affect poverty through the NTPs, meaning the 27 conventions that beneficiary countries must implement (Ferrari et al., 2021). Second, empirical evidence and trade data show that the trade provisions of the GSP+ leads to increased trade volumes, which consequently impacts poverty. Yet, an extensive review of literature has demonstrated that the link between PTAs and non-trade outcomes is seldom directly through trade. Instead, trade affects employment, economic growth, government revenues, and domestic prices, which mediate the effect on poverty.

Figure 2.

The mechanisms linking the GSP+ and poverty outcomes



Note. Adapted from Ferrari et al., 2021

The following section will describe the theoretical framework of the mechanisms linking the GSP+ and poverty. However, it is essential to note that this theoretical framework includes only the most important channels since the link between PTAs and poverty is far from conclusive. Yet, it is valuable to understand how the GSP+ could affect poverty levels in beneficiary countries.

4.1.1 The direct effect of NTPs on poverty

The first channel, the NTPs, meaning the 27 conventions of the GSP+, can directly impact non-trade outcomes, such as poverty. The GSP+ policy includes those provisions as 'hard' institutional mechanisms, meaning that preferential access to the EU market is conditional on their implementation. The conventions of the GSP+ policy can be divided into two parts. First, fifteen conventions concerning human and labour rights and, second, conventions related to the environment and good governance. Since existing literature has not found much evidence regarding the effect of environmental and good governance provisions on poverty, the following explanation will focus on the first part, namely the human and labour rights and the impact on poverty. While explaining the exact mechanisms goes beyond the scope of this thesis, a short overview of the direct link between the NTPs of the GSP+ and poverty will be given.

First, the conventions on international labour standards included in the GSP+ can positively affect poverty levels. An extensive body of literature has shown that income inequality is lower in labour markets with stricter employment protection, more equal power balances between management and labour, and better wage coordination. Brady, Blome, and Kleider (2016) argue that low-wage employment and working poverty are less prevalent in markets characterized by such institutions. This highlights the importance of labour market institutions and the effect on incomes and inequality. Since incomes and inequality are the main determinants of poverty levels, this literature is relevant to labour market institutions and applies to poverty.

Second, also human rights principles can affect poverty reduction. Hafner-Burton (2005) finds that PTAs are effective in changing the behaviour of governments. Specifically, he finds that PTAs improve the human rights standards in member countries by providing tools and resources that incentivize actors to promote reforms that would not have been implemented

without the PTA. Likewise, Apergis and Cooray (2020) studied the direct effect of human rights on poverty levels. The findings suggest that stronger human rights records decrease income inequality and poverty levels. The authors further argue that trade relations can only reduce poverty if domestic human rights records are strong.

Third, the conventions on good governance can also have a direct impact on poverty reduction. The GSP+ policy enforces diverse conventions of good governance, which can influence non-trade outcomes beneficial for poverty reduction. The GSP+ includes the enforcement of the UN Convention against corruption, which can positively affect poverty reduction. High levels of corruption are exacerbating conditions for the poor because higher corruption hinders economic growth, increases inequality, and reduces governance capacity (Chetwynd, Chetwynd, & Spector, 2003). Especially in developing countries, corruption can have a detrimental impact on poverty levels. Thus, the NTP of corruption can directly influence poverty outcomes.

Overall, the NTPs of the GSP+ can have a direct impact on poverty levels. However, NTPs can also indirectly impact poverty through increased trade volumes. Distelhorst and Locke (2018) argue that, contrary to the 'race to the bottom' theory, NTPs proliferated because importing firms reward exporters if they comply with social standards. They find evidence that compliance with NTPs results in a four percent increase in a countries' annual purchasing volumes. This is because trading firms favour exporters complying with higher standards, which creates incentives for exporters to improve their standards. This increase in trade volumes can then translate into accelerated economic growth and poverty reduction.

4.1.2 Theoretical explanations for the indirect trade-poverty nexus

The main theoretical argument underlying the research of this thesis is that the GSP+ has a positive effect on trade volumes with the EU, which translates into benefits for the poor. The following subchapter will describe the theoretical channels through which increased trade volumes could lead to poverty reduction.

4.1.2.1 Employment

The first mechanism that explains the relationship between trade and poverty is through employment and the labour market. A key theory explaining the effect of trade on poverty is the Heckscher-Ohlin model. This standard economic theory states that gains of trade flow to

those factors that are abundant in an economy (Topalova, 2007). The model theorizes that countries develop a comparative advantage from the differences in factor endowments of production. Countries will specialise in producing goods that require most of their relatively abundant factor (Lal, 2018). Krueger (1983) used this framework to argue that trade is pro-poor in developing countries since these economies have a comparative advantage in producing goods that require unskilled labour. This means that in developing countries, the gains would flow to the unskilled workforce since this is abundant in low-income countries. Trade will, therefore, directly benefit low-skilled labour in developing countries, which will increase their incomes and thus reduce poverty (Lal, 2017).

Yet, this argument is subject to some caveats. If, for example, the poor in a country are mostly unskilled, but skilled labour is on demand, poverty levels will, at best, remain unaffected, and at worst, be deteriorated. As such, increased trade may be complemented by technical changes requiring skilled labour, which would leave the unskilled unaffected. For example, following trade liberalization, prices for capital goods are lower, which would lead firms to invest in machines and technologies, which require skilled labour. Since the poor are mostly unskilled, this would not reduce poverty (Winters et al., 2004). Furthermore, a key requirement is that the poor must be able to respond to the changing labour market through sectoral and geographical mobility (Martuscelli & Gasiorek, 2019). If there are barriers to labour mobility for workers or barriers to entry and exit for firms, the benefits from trade flows will not be accessible to the poor.

4.1.2.2 Government revenues

Another channel through which PTAs have an indirect effect on the poor is through government revenues and spending. Government revenues depend on whether the PTA is reciprocal or unilateral. Since the GSP+ does not require the developing countries to reduce their tariffs, government revenues do not suffer from reduced tariff incomes. On the contrary, the poor may even benefit from increased government revenues, if they are invested in programs to support the poor. The higher productivity and earnings of domestic business lead to higher government tax revenues (Martuscelli & Gasiorek, 2019). If the government spends those tax revenues on social programs that benefit the poor, poverty may be reduced. Especially public programs regarding health care and other basic needs can substantially help the poor.

4.1.2.3 Economic growth

The main mechanism linking PTAs and poverty reduction is through economic growth. Overall, a review of economic theory clearly shows that there is widespread belief that exports generate growth. In the broadest terms, the channels linking trade and growth are increased productivity, higher competition, enlarged variety, stimulated innovation and learning, transfer of technology, and improved quality (Froman, 2016). Further, traditional trade theory predicts that trade openness of a country produces welfare gains through specialisation, investments into innovative techniques, improved productivity, and a more efficient allocation of resources (Le Goff & Singh, 2014).

Classical economists, such as Smith and Ricardo have argued that international trade allows a better allocation of resources, which in turn increases incomes. In the absence of international trade, the growth of an economy is constrained by domestic demand. Especially in developing countries, characterised by small domestic markets and low domestic demand, foreign markets provide an essential source of demand (Hvidt Thelle et al., 2015a). Therefore, international exports and increased demand allow producers to profit from economies of scale, consequently reducing per-unit production costs, and thus increasing productivity. Those aspects then lead to increased economic growth. Furthermore, trade increases employment opportunities, which also stimulates economic growth. Overall, theoretical explanations show that there are various channels through which trade is expected to generate economic growth of an economy. However, economic growth is insufficient for reducing poverty. Thus, the link between growth and poverty must be examined separately.

Traditional theory linking trade, economic growth, and poverty is the so called 'Trickle-Down Effect'. The theory is that trade liberalisation encourages economic growth, which would automatically 'trickle-down' to the poor, and, thus, decrease poverty (Kuznets, 1955; Rostow, 1960). According to this theory, eliminating trade barriers is the best way to achieve economic growth and reduce poverty. However, in recent years the gap between rich and poor has widened and has, thus, led researchers to re-examine the trickle-down hypothesis. Recent literature has failed to find empirical evidence of the trickle-down effect. The findings of Thornton, Agnello and Link (1978) indicate that the trickle-down effect is overstated and that the link between economic growth and poverty reduction is weak. Similarly, Odhiambo (2011) examined the causal relationship of trickle-down effect in South Africa, but did not find any evidence. In conclusion, the lack of empirical evidence for the traditional link between growth

and poverty, and the persisting high poverty levels in countries with fast economic growth has raised doubt about the direct link between growth and poverty.

On the opposite side are scholars arguing that international trade could also harm underdeveloped countries. Known as the 'infant industry argument', it is reasoned that moving from autarky to trade liberalisation, developing countries are confronted with fierce competition that their industries cannot compete with (Chang, 2002). Proponents claim that history has shown that most developed countries have themselves implemented protectionist policies in their early stage of development to protect their industries from competition. This protection is necessary for development, since international competition would prohibit underdeveloped industries to advance (Saure, 2007). Thus, developed countries promoting free trade are 'kicking away the ladder' that they used themselves to climb up to their current state of development. Proponents of this argument contend that most developing countries are not prepared for trade liberalisation and that there need to be measures implemented that take their special needs into account (Freres & Mold, 2004). Thus, trade agreements must take into account the development levels of individual nations.

In summary, one can say that existing literature provides clear evidence that trade positively affects economic growth. It is often argued that if trade improves economic growth and growth is equally distributed, then trade reduces poverty. However, mixed empirical findings demonstrate that the effect of growth on poverty should be treated with caution.

4.1.2.4 Prices

Furthermore, several newer theoretical explanations also state that trade contributes to poverty reduction through changes in imports and exports prices (Bannister & Thugge, 2001). On the one hand, price changes may directly impact the poor. Following the implementation of a PTA, the reduction in tariffs are theorised to have an immediate impact on the price of imported goods and, therefore, on household's welfare and poverty (Martuscelli & Gasiorek, 2019). The lower prices of imported goods increases the affordability of necessary products, such as basic food or medicals. As a result, welfare for consumers is increased, meaning that trade indirectly increases real incomes and, thus, decreases poverty.

On the other hand, price changes affect businesses in developing countries, which can have indirect effects on the poor. First, the reduced taxes and other barriers on exports increase

the prices that exporters receive. As a result, exporters are incentivised to increase the production of tradable goods, which may, in turn, increase employment and income of the poor. Thus, trade may change the prices of factors, such labour and capital used in the production of exports, which subsequently affects the incomes of the poor (Gil-Pareja, Llorca-Vivero, & Martínez-Serrano, 2014). Second, preferential trade reduces the import duties of developing countries, thus, increasing export earnings and innovative investments. In the long-term, this may contribute to sustainable development and reduced poverty (Tanaka, 2021). Third, lower prices can be beneficial for businesses purchasing intermediate goods on the international market. Following the liberalisation, exporters could increase the ability to source intermediary goods of higher quality or lower price, which increases their competitiveness in the international market.

The theoretical explanations and empirical evidence lead one to expect that the GSP+ reduces poverty. Even though the indirect links through increased trade flows are subject to some limitations and lacking empirical evidence, the combination with the direct effects of the NTPs provide theoretical expectation that poverty levels have decreased in GSP+ beneficiary countries. For this, not only the incidence of poverty but also the depth of poverty is of interest (see section 6.2), leading to the following hypotheses:

H1: The poverty incidence of countries participating in the GSP+ arrangement has decreased in the first GSP+ period (2004-2012).

H2: The poverty depth of countries participating in the GSP+ arrangement has decreased in the first GSP+ period (2004-2012).

4.2 Policy environment

As described in section 3.3.2, complementary policies and the institutional environment are expected to significantly affect the relationship between trade and poverty. This is also displayed in Figure 2, which demonstrates that the relations between the PTA and poverty are embedded in the policy environment. Several authors have argued that PTAs alone are insufficient for poverty reduction. Trade flows can only operate as a promoter of sustainable development if the policy environment is supportive (McQueen, 2007). For trade liberalisation, a set of variables have been put forward to explain the effect of the heterogeneous policy environment in countries (Winters, 2004). To account for those influences, four factors are

included in the analysis as control variables. This thesis follows Le Goff and Singh (2013) and Hvidt Thelle (2015a) and includes Education, Access to financial Credit, Rule of Law, and Political Stability and Absence of Violence as control variables. Since those variables can significantly contribute to a better understanding of the GSP+ policy and its policy environment, they are elaborated on it the following.

4.2.1 Education

A vital aspect of the policy environment is the level of education. The human capital framework states that education is crucial for the formation of human capital, which in turn is an important factor of economic growth (Tilak, 2002). Specifically, education improves the skills and knowledge of people, which increases employment and productivity, resulting in higher earnings. This creates a virtuous circle because the higher earnings translate into higher education. A second approach is the 'basic needs approach', which states that higher education leads people to better fulfil basic needs, such as better health, sanitation, food, and shelter. This, in turn, facilitates poverty reduction through higher productivity, reduced fertility, and greater longevity (Tilak, 2002). Moreover, education poverty, defined as the non-participation of children and the poor in schooling and high drop-outs, is directly related to income poverty.

Several studies have confirmed those theoretical explanations since they found a significant positive relationship between education and economic growth (Lucas, 1988; Romer, 1990; Barro, 1991). Those theories and findings suggest that education is an important factor in reducing poverty. Without sufficient levels of education, the poor have limited absorptive capacity, which prohibits the ability to use the opportunities provided by the GSP+. Therefore, based on previous empirical findings and theoretical explanations, the following hypothesis is derived:

H3: Education has a negative relationship with poverty levels. Higher education levels lead to lower poverty levels.

4.2.2 Access to financial credit

As the literature review has shown, supplementary provisions and appropriate domestic policies are necessary for participation in the world market. A key domestic provision that is required to benefit from trade liberalisation is that businesses have sufficient access to domestic credit (Hvidt Thelle, 2015a). Without access to financial credit, domestic businesses may not

be able to purchase machinery and capital goods, leverage the increased international demand or pay higher wages to employees. Improved access to credit ensures that businesses can enter the international market and benefit from the opportunities offered. Further, policies that facilitate investments and facilitate the purchase of assets, such as machinery or capital goods, might be of substantial importance to increasing economic growth and reducing poverty (Deininger & Squire, 1998). Based on this reasoning and empirical findings, the following hypothesis is derived:

H4: Access to credit has a negative relationship with poverty levels. Higher levels of domestic credit available to the private sector lead to lower poverty levels

4.2.3 Rule of Law

Another important factor is the institutional environment. Hasan, Quibria, and Kim (2003) argue that institutions supporting economic freedom are essential for reducing poverty. Economic freedom is defined as the level of good governance, the regulation of markets, and the Rule of Law. Similarly, Dollar and Kraay (2002) demonstrate that the poor benefit from economic growth but that the respective growth-enhancing policies concerning Rule of Law and fiscal discipline should be at the heart of prosperous poverty reduction strategies. Also, Le Goff & Singh (2013) find that better trade openness only positively affects the poor when institutional quality, measured by the Rule of Law and order, is sufficiently high.

Overall, empirical findings suggest that an environment where laws and contracts are enforced efficiently leads to more favourable opportunities for businesses to emerge. This leads to the following hypothesis:

H5: Rule of Law has a negative relationship with poverty levels. Better Rule of Law leads to lower poverty levels.

4.2.4 Political Stability and Absence of Violence

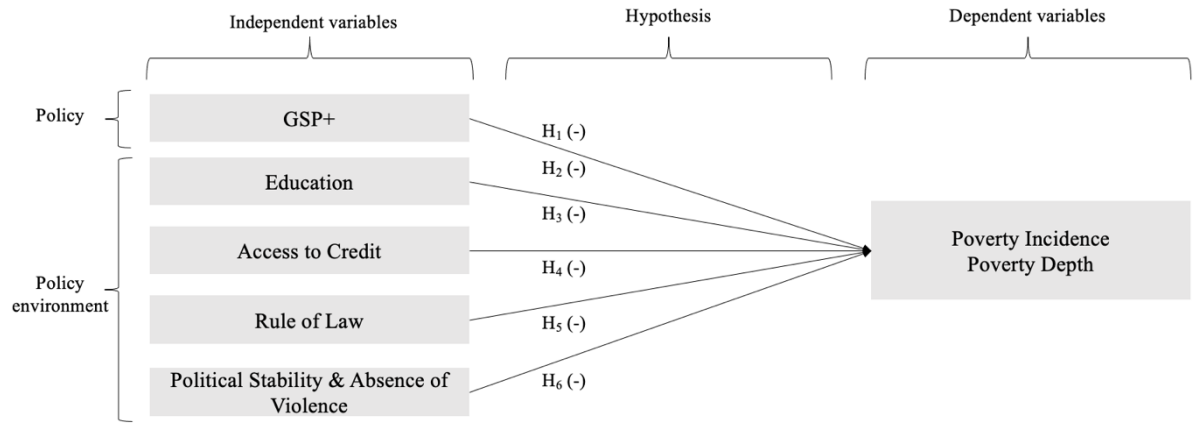
Another crucial factor in the domestic environment is the level of political stability and absence of violence, hereafter Political Stability. Numerous studies have examined the effect of political instability on economic growth and poverty. The results demonstrate that political instability leads to slower growth rates (Alesina & Perotti, 1994; Devereux & Wen, 1998;

Gurgul & Lach, 2013). Also, Sindzingre (2005) argues that institutions are important in explaining the relationship between trade and poverty. She advocates that domestic political stability and institutions significantly impact the extent to which the poor can benefit from globalization and trade liberalisation. Further, Shehzadi, Siddique, and Majeed (2019) find that political stability not only decreases economic growth but that it is also detrimental to income inequality and that it increases poverty. Based on those findings, the last hypothesis was derived:

H6: Political Stability and Absence of Violence have a negative relationship with poverty levels. Better Political Stability and Absence of Violence leads to lower poverty levels.

Figure 3.

Conceptual Framework



5. Methodology

In order to test the hypotheses stated in the previous section, a quantitative analysis is conducted. This chapter describes the research method applied and is structured as follows. First, the potential methods based on earlier studies will be discussed. Second, the methodology of this study will be explained, and the model specification will be described. Third, the underlying assumptions and potential sources of bias will be outlined.

5.1 Potential Research Methods

To test the hypotheses stated in chapter 4, various research designs are possible. When evaluating the methods applied in previous studies, it is noticeable that most studies analysing the GSP+ performed a case study, focussing on the impact of the GSP+ on an outcome variable of interest in one specific country. However, to draw conclusions about the program's overall impact on poverty, which is the aim of this study, a larger sample size is required. Thus, this thesis will perform a quantitative analysis of the treatment effect of the GSP+ on its beneficiary countries, based on a large-N sample.

To the best of the author's knowledge, no study examining the treatment effect of the GSP+ on poverty reduction has been performed yet. Thus, this thesis relies on the broader body of literature analysing specific policies to assess methods suitable to study the impact of the GSP+ on poverty reduction. Researchers analysing the effect of particular policies on an outcome of interest have several possible methods at hand.

Khandker, Koolwal, and Samad (2009) describe several potential methods to measure the impact of policies. Since an experimental research design or randomization is not possible, other methods controlling those factors must be chosen. Fundamental in evaluating a program is to analyse the effect of being treated, which is the difference between participant's outcomes and the outcome if they would not have participated. Therefore, the key in impact evaluation is the problem of missing data since it is not possible to observe the outcome of program participants if they would not have participated. To overcome this problem, a method comparing the treated group to a counterfactual group is necessary. Two questions are crucial in the selection of the appropriate method. First, the central question of impact evaluation concerns the attribution of the impact, meaning the program’s effect must be isolated from

other factors influencing the outcome variable. Second, the question of causality must be addressed accurately (Khandker et al., 2009).

Regression discontinuity, instrumental variable estimation, and differences-in-differences are among the most popular methods to evaluate a policy or program treatment effect (Khandker et al., 2009). First, regression discontinuity compares participants to non-participants close to a cut-off value indicating program eligibility. This could provide a suitable method for this thesis. However, operationalising GSP+ eligibility is problematic since also unobservable factors determine eligibility. Therefore, this method proves arduous to apply in this study.

Second, the instrumental variable estimation method is conducted by finding a variable, or instrument, that is correlated with program participation but not correlated with unobserved characteristics, which affect the outcome (Khandker et al., 2009). This instrument is then used to predict program participation. However, the selection of instruments is difficult because weak instruments can aggravate the problem of bias. Due to the complexity and the dynamic of the GSP+ policy, finding an appropriate instrument is particularly challenging in this study.

Finally, the differences-in-differences (DiD) estimation is a well-known method to estimate causal effects, where randomized control trials (RCT) are infeasible. The decisive benefits of this method are that it only requires data about the outcome variable before and after program participation and that taking the differences of the differences is assumed to difference out the time-invariant fixed effects. If the analysis satisfies the method's assumption, the results of the DiD are robust to any possible confounder (Friedman, 2013).

Thus, after weighing the advantages and disadvantages of the possible methods, the DiD method proves to be the most suitable for the context of this study. The method has become a leading approach in empirical economics and is also widely used in political sciences to estimate the effect of policies on a specific outcome of interest. The following section will explain the DiD method and introduce the model equations applied in this thesis.

5.2 Differences-in-differences method

The difference-in-difference (DiD) method is a quasi- or non-experimental method to estimate the causal treatment effect of policies through panel or repeated cross-sectional data analysis. The basic idea of the DiD is that the treated group is compared to a non-treated counterfactual. The standard case is that outcomes are observed for two groups, treated and non-treated, and for two time periods, before and after the treatment.

The aim is to obtain the mean outcome, which the treated would have experienced if they had not been treated. As this is impossible to observe, the DiD method serves as a quasi-experimental research design to estimate the treatment effect based on observable variables. The rationale behind this technique is that if the treated and the non-treated group are affected by the same time trends, and if the treatment does not affect the pre-treatment period, then the estimate of the treatment's effect can be used to remove the impact of confounding factors to which both treated and non-treated groups are subject to (Lechner, 2011). Essentially, the treatment and control groups are compared "in terms of outcome changes over time relative to the outcomes observed for a pre-intervention baseline" (Khandker et al., 2009, p.72). The DiD method assumes that the unobserved heterogeneity between participants and non-participants is present, but that this is cancelled out through taking the differences of the differences.

In the context of this thesis, this means that the DiD method is used to eliminate the country and time effects for which one would have to control otherwise. Subtracting the average gain of the control group from the average gain of the treated group removes the bias of comparison between the control and treatment group. Further, it eliminates the bias of time trends, resulting from comparing the outcomes of the treatment group over time (Wooldridge, 2007). In other words, taking the differences of the differences eliminates the fixed effect and the drift (Cameron & Trivedi, 2005).

Based on this, the DiD method proves to be the most suitable technique for the present study. It provides a transparent, intuitive method to account for both the selection and unobserved characteristics (Khandker et al., 2009). Overall, the technique is widely used because its implementation only requires regression techniques and because the data requirements are more relaxed than for most comparable methods (Mora & Reggio, 2012).

The DiD approach with two periods and two groups offers several advantages for this thesis. First, a key advantage is that the method requires data for only two points in time. Since the availability of poverty data, especially in developing countries, is often incomplete, it facilitates the analysis substantially. Second, taking the difference of the differences controls for underlying temporal trends and unobservable fixed factors that affect the endogenous eligibility and program treatment (Takahashi, Higashikata & Tsukada, 2009). Thus, the conditional exogeneity assumption is relaxed, making it a more straightforward technique. Third, a benefit is that the estimates can be interpreted causally. This is because "the design forces adherence to time-ordering in exposure and outcome measures" (Warton, Parker & Karter, 2016, p.1). Overall, the DiD method facilitates the transparency of the analysis and generates clearly interpretable estimates (Beatty & Shimshack, 2011).

5.3 Model specification

This study aims to estimate the mean impact of the GSP+ program on poverty. Since the impact evaluation only concerns those who participate in the program, the core parameter of this study is called the *average treatment effect on the treated* (ATT). With a two-period setting, where t=0 denotes the pre-intervention period, and t=1 denotes the post-intervention period, and where T=0 for the non-treated and T=1 for the treated, and letting Y_{ct} be the respective outcomes, the ATT can be defined as the following:

$$ATT = E(Y_{1i} - Y_{0i} \mid D_i = 1) = E(Y_{1i} \mid D_i = 1) - E(Y_{0i} \mid D_i = 1) \quad (1)$$

In this definition, E(.) denotes the expectation operator, Y_{1i} is the outcome of interest of country *i* participating in GSP+, Y_{0i} is the outcome of the same country without participating in the GSP+ program. D is a treatment dummy, equal to 1 if the country is treated, and 0 otherwise. While this equation presents the isolated impact of the GSP+ policy, observing the outcome of participating countries had they not participated, $(Y_{1i} \mid D_i = 1)$, is impossible. Therefore, a central task is to construct an appropriate counterfactual, which indicates the outcome of the treated if they would not have been treated.

To estimate the expected values of equation (1), this study will apply an ordinary least squares (OLS) model for the single DiD regression analysis. To examine the pattern of change in poverty levels over time, the DiD will compare the before- and after-estimates for participants and non-participants. The regression model is parameterized following the DiD literature and is expressed with the following equation:

$$Y_{ct} = \alpha + \beta_1 * Treatment + \beta_2 * time + \beta_3 * (Treatment * Time) + \gamma * X_{ct} + \varepsilon_{ct} \quad (2)$$

In this equation, *c* indexes the individual country, and *t* indexes time. Thus, Y_{ct} denotes the outcome for a country *c,* at time *t*. α captures the group-level time-invariant fixed effects, and X_{ct} denotes the covariates of the study. ε_{ct} is the error term of the regression and $Treatment$ is a dummy variable, which equals 1 if the country is treated and 0 otherwise. $Treatment$ is included for time-invariant differences between the control and the treatment group. The coefficient β_1 captures this variation (Roberts & Whited, 2012). $Time$ is a time dummy, equal to 1 for the period after the treatment, and 0 before the treatment. Similar to *Treatment,* including the *Time* dummy controls for common temporal trends among the two groups, and the coefficient β_2 will capture this variation. β_3 is the differences-in-differences coefficient, which identifies the change in poverty level pre-treatment and post-treatment within the GSP+ group relative to the similar change within the control group. It measures the difference in slopes between the two groups. Assuming that the GSP+ was the only difference between pre-treatment and post-treatment, this parameter can be interpreted as the effect of the GSP+ treatment. If this estimate is statistically significant, it indicates that the slopes are not parallel and that the GSP+ treatment has affected poverty in the treated group differently than the underlying trend, as represented by the non-treated group (Warton et al., 2016).

The difference-in-differences estimate is:

$$\widehat{\beta 3} = (\bar{y}_{\text{Treated, After}} - \bar{y}_{\text{Treated, Before}}) - (\bar{y}_{\text{Control, After}} - \bar{y}_{\text{Control, Before}})$$

In this, y is the outcome variable, and the bar represents the average value. This linear regression specifies the poverty outcome Y_{it} based on four parameters:

α= The control group before treatment
$\alpha+\beta_1$= The GSP+ group before treatment
$\alpha+\beta_1+\beta_2$= The counterfactual outcome
$\alpha+\beta_1+\beta_2+\beta_3$= The GSP+ group post-treatment

Figure 4.

Graphical representation of the difference-in-differences model.

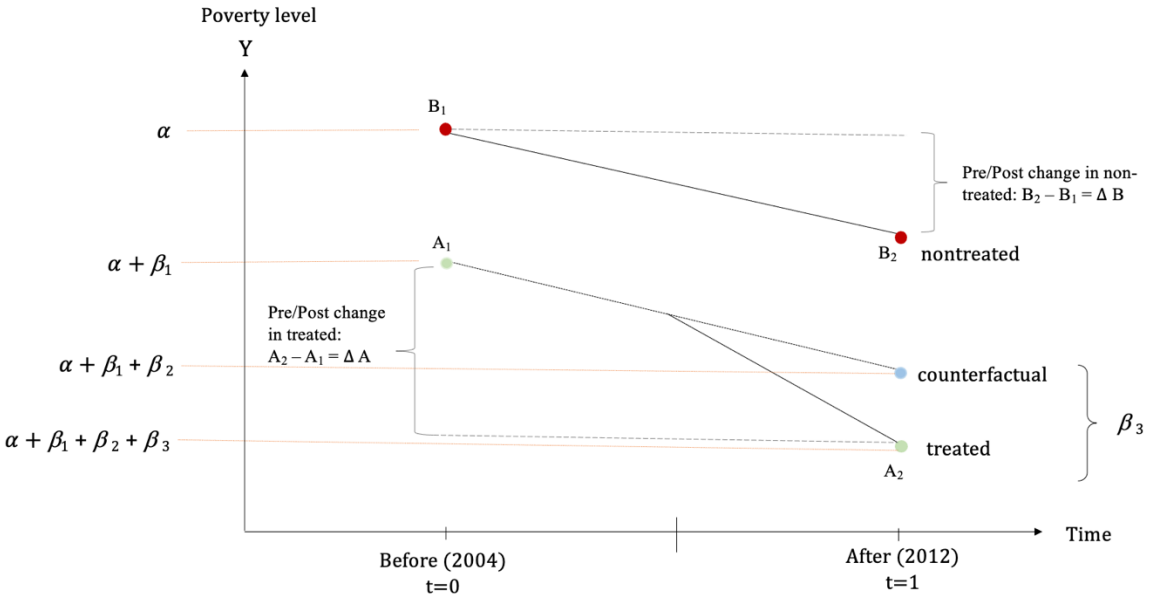


Figure 4 illustrates the two-group, two-period DiD regression analysis. The graph depicts the observed change in poverty levels over time for the treated and the non-treated. The upper line connecting the red dots represents the poverty trend in the control group. The counterfactual outcome is the poverty level the GSP+ countries would have if they had not been treated. This counterfactual cannot be observed, but it is estimated based on the parallel trends assumption and the control group (see section 5.4). The parameter of interest is β_3, denoting the treatment effect of the treated on outcome Y.

5.4 Assumptions and potential sources of bias

The DiD method is subject to several assumptions, which must be satisfied for the model to be unbiased. First, the *Stable Unit Treatment Value* assumption requires that only one of the potential outcomes is observable for all individuals. It further implies that no relevant interactions between members of the populations take place, meaning that a unit's outcome value is unaffected by which treatment the other units receive (Lechner, 2011). To satisfy this condition, the outcome of the non-participating group must be the same as it would have been without the program, both before and after the treatment since participants anticipating the future program could change their behaviour before the implementation, affecting non-participants (Rubin, 1977). Since the participation in the GSP+ does not impact non-

participants, meaning that a non-participating country's poverty value is unaffected by the treatment the other countries receive, this assumption is fulfilled. This assumption would be violated if the admission of new members into the GSP+ would lead to such competition in exports to the EU that the non-participating countries would be affected by this. However, since the number of countries in the GSP+ is relatively small, the interaction of the GSP+ with non-participants is insignificant, and the assumption can be assumed to be satisfied.

Second, the *exogeneity assumption* presumes that the treatment does not influence the covariates over time. In this thesis, only control variables, which are assumed to be exogenous are included. Therefore, the second assumption can be considered as satisfied. Additionally, also the pre-treatment period must not be influenced by treatment. Individuals could anticipate the treatment, which could change their behaviour correspondingly (Lechner, 2011). This assumption, known as the *conditional independence assumption*, assumes that in the period before the program, the treatment did not affect the population. It has not led to behavioural changes of the treated in anticipation of the treatment (Lechner, 2011). Only with this assumption can the outcome changes for a comparable non-treated group be used as the appropriate counterfactual (Khandker et al., 2009). Both the exogeneity and independence assumption are satisfied since countries need to apply for the program and will not anticipate the treatment far in advance.

Finally, the key identifying assumption of the DiD method is the *common trend assumption*, also known as the *parallel trend assumption*. This assumption requires that the differences in the expected outcome of the non-treated, conditional on the covariates, are unrelated to belonging to the treatment or control group in the period post-treatment (Lechner, 2011). Thus, in the absence of the policy intervention, the average change in Y would have been the same for both treated and non-treated groups. This implicates that without the GSP+ policy, the trend in the control group would have been equal to the trend in the treatment group, meaning they would have followed parallel paths over time. This assumption is violated if the pre-treatment characteristics, associated with the dynamics of the outcome variable, are unequal between the treated and the non-treated group (Abadie, 2005). Strictly speaking, this assumption cannot be tested by statistical means. However, it can be investigated through the inspection of panel data. The poverty trend must display equal trends for both groups. Also, the unobserved characteristics affecting the participation in the program must not vary over time and with treatment status. This will be examined in section 6.4.

6. Data

This chapter will provide an overview of the data used in this study. First, the selection of the countries in both groups will be explained. Second, the operationalisation of the variables will be described, followed by a descriptive summary of the raw data.

6.1 Sample composition and country selection

The difference-in-difference method has specific data requirements. First, the treatment effect must be measured using panel data or repeated cross-sectional data before and after the treatment. Second, not all countries in the sample can receive the treatment, so that the treated can be compared to a non-treated group (Cameron & Trivedi, 2005). Further, it requires that a precise starting and ending date is available (Slaughter, 1998). Following these criteria, both a treatment group and a control group have to be constructed. The countries included in the individual groups will be explained in the following.

6.1.1 Treatment group

The treatment group for this study includes countries that participated in the GSP+ program. The countries for the treatment group must satisfy one requirement. Since the program is still ongoing, and since some countries stayed beneficiaries for longer than others, this study uses 2012 as the cut-off for the post-treatment period. Thus, countries must have consistently participated in the GSP+ program from 2005 until 2012.

Even though some countries maintained beneficiaries for longer, 2012 proves suitable as an after-period for two reasons. First, in 2013, the GSP+ policy has undergone fundamental changes. Many of the principles were revised to improve the benefits for the treated countries. Thus, the program has changed substantially following the year 2012. Second, comparing 2005 to 2012 operates as an adequate period for the program's benefits to materialise. Choosing too short of a time frame could underestimate the effect of the treatment because, as the literature review has shown, the impact on poverty is not observable immediately.

Figure 5.

GSP+ beneficiary countries 2005-2019

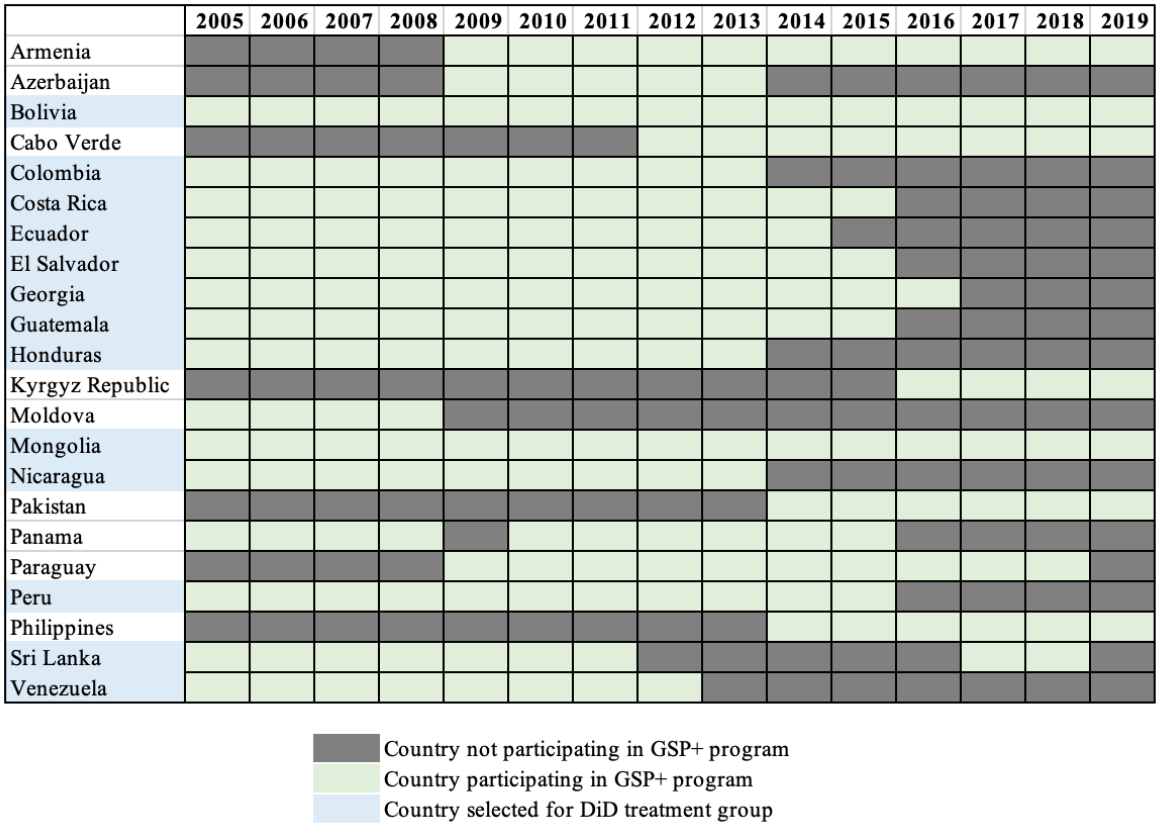


Figure 5 shows that, out of the 22 countries that were part of the GSP+ program, 13 fulfil the criteria that they participated from 2005 until 2012. As a result, the DiD analysis includes 13 countries in the treated group, which are highlighted in light blue. The countries included in the treatment group are listed in Appendix I.

6.1.2 Control group

The critical challenge in the DiD method is to find a reasonable counterfactual. Based on the parallel trends assumption, the counterfactual is the outcome, which a GSP+ country would have experienced had it not been treated (Khandker et al., 2009). To satisfy the parallel trends assumption, the control group must be as similar as possible to the treated group. If the groups had significant differences, the treatment effect estimates could be subject to selection bias (Baltar, Sousa, & Westphal, 2014). Thus, the selection of control groups is of fundamental importance. The aim is to construct a control group that only differs from the treatment group by participating in the program (Goodman-Bacon, & Marcus, 2020). Thus, countries differing

in past characteristics compared to the treatment group are excluded from the sample (Wing, Simon, & Bello-Gomez, 2018).

Constructing a suitable control group is based on finding countries comparable in both observed and unobserved characteristics. Theoretically, all low-and middle-income countries could be selected for the control group. However, to ensure that countries are similar, this study will limit the sample of potential countries to those participating in the standard GSP arrangement. The first advantage of this is that it can be assumed that countries in the GSP are similar to GSP+ countries in many characteristics. Since all countries in the GSP are eligible for applying to the GSP+ program, many aspects can be assumed to be similar for GSP and GSP+ countries. Since eligibility is based mainly on vulnerability, the GSP group serves as an optimal sample for the control group. Yet, the sample has to be carefully inspected to ensure that only similar countries of the GSP are included in the control group.

The first requirement is that the countries were constantly in the GSP arrangement and did not exit the program from 2005 to 2012. Second, sufficient data points measuring poverty in those countries must be available. The poverty measurement for each country should include sufficient poverty level measurements so that missing data points can be estimated reliably. Following these criteria, countries with too few poverty measurements are excluded from the sample. The sample of GSP countries satisfying those two criteria amounts to 48 countries, which could be included in the control group. To reassure that the control group is similar to the treated, several checks can be performed. This thesis will apply the *Malahanobis distance* as a robustness check to detect outliers and ensure that only countries similar in their covariates are included in the control group.

The Mahalanobis distance calculates a geometric distance among the individuals in a sample. This distance uses the all-inclusive variance and covariance of the sample, meaning that the variables are not regarded as independent. Instead, the relation between the variables is included in the analysis (Baltar, et al., 2014). The Mahalanobis distance is computed using the Mahalanobis software in R. The results indicate that some distances are relatively large. To determine if the distances are statistically significant, the p-value of the individual distances was included. The significance for each distance is calculated as the p-value of the Chi-Square statistics of the Mahalanobis distance with k-1 degrees of freedom, with k denoting the number of variables, which is four in this case (Zach, 2020). This study considers countries with a p-

value smaller than 0.01 as too distant and will remove those countries from the analysis. Those countries are Cyprus, Cote d'Ivoire, Belarus, Pakistan, Cameroon, China, Thailand, South Africa, Malaysia, and the Philippines. As a result, the countries included in the final sample of this study amount to 47 countries, with 13 in the treatment group (GSP+ beneficiaries) and 30 in the control group (GSP beneficiaries). Table 1 depicts the number of observations in each group, and Appendix I lists the countries included in the analysis.

Table 1.

Number of observations in treatment and control group

Year	Treatment	Control	Total
2004	13	30	43
2012	13	30	43
Total	26	60	86

As can be seen in Table 1, the sample size of this study is relatively small. Nevertheless, as this study focuses on estimating the treatment effect of one specific preferential trade policy, the GSP+, without generalizing the results for other PTAs, this does not make the analysis problematic. Furthermore, it is more important to have a reliable control group and not risk violating the parallel trends assumption than to have more countries included. Thus, the following analysis will be based on the composition of this control and treatment group.

6.2 Poverty measurement

The dependent variable in this study is the poverty outcome. Since poverty is a multi-dimensional concept, which can be defined and measured in various ways, many different measurements and indicators are applied in academic literature, and there is much debate about the best measurement of poverty.

It can be said that there is a general agreement that poverty reduction is an overriding goal of development policy. Yet, a continuing problem, which hinders the effective fight against poverty, is the absence of a clear definition of poverty. Poverty is a complex and multi-dimensional concept, which includes many aspects. The complexity of the concept of poverty makes it difficult to clearly define poverty and makes it even more difficult to measure it. The ongoing debate about what facets are included in the concept of poverty aggravates the difficulty of defining poverty as a measurable variable. The multitude of poverty measures

causes global poverty to vary substantially across both academics and practice. Yet, the majority of academic literature on poverty implements an absolute poverty measurement, either based on income or consumption metrics. Thus, while recognizing that there are many legitimate approaches to measure poverty, this paper will follow the majority of literature and define poverty in absolute terms, measured as the poverty incidence and the poverty depth. Especially because the study focuses on developing countries, the absolute measurement appears most appropriate.

The conceptual framework has presented that both the incidence and the depth of poverty are interesting for this study. There are two particular properties of poverty operationalisation that are important. First, the poverty indicator must be comparable across countries and, second, sufficient data must be available before and after the treatment. This thesis follows the definition of the United Nations and other fundamental literature (Le Goff & Singh, 2013; World Bank, n.d.; Hvidt Thelle et al., 2015a) and defines poverty as the level of extreme poverty, measured as the poverty headcount and the poverty gap.

The poverty headcount variable counts the number of people, calculated as a ratio of the total population living below the $1.9 poverty line, based on the 2011 Purchasing Power Parity (PPP) exchange rate. This measure ignores the distribution of the poor and considers everyone below the $1.9 poverty line to be equally poor. In contrast, the poverty gap measure tries to overcome this deficit by measuring the mean shortfall of the poor from the poverty line, thus indicating the depth of poverty (World Bank, n.d.). Specifically, the poverty gap measure assigns a value of 0 to those above the poverty line and considers the distribution of the poor falling below the line, expressed as a percentage.

The data of the poverty measure is retrieved from the World Bank's database for poverty measures, called PovcalNet (World Bank, n.d.). PovcalNet collects the World Bank's official country-level poverty estimates through national household surveys for numerous countries (Castaneda Aguilar et al., 2019). Reviewing the literature on poverty shows that the PovcalNet database is the most widely used in academic literature, which increases the confidence that it also proves to be the most suitable for this study (Iradian, 2005). Another advantage of this measure is that it is frequently used by studies of the EU (Hvidt Thelle et al., 2015a). This is beneficial since this thesis analyses the effectiveness of the EU's GSP+ policy. Therefore, using the same indicators as the EU improves the comparability and makes the

findings more transparent. Furthermore, even though the DiD method only requires cross-sectional data before and after the treatment, the availability of panel data allows inspecting the parallel trend assumption. This increases the confidence and reliability of the results of this study.

Yet, despite its popularity, the PovcalNet data are subject to some drawbacks. The first problem is that the data are based on national household surveys. These surveys are not standardized across countries, meaning that comparisons can be subject to measurement inequalities (Iradian, 2005). The second difficulty is using either consumption or income as a measurement variable of the PovcalNet data. While some surveys base the poverty measurement on income, others use consumption as the primary input variable. Thus, there could be some differences between country-level data, possibly leading to imperfectly comparable measures. However, while those limitations need to be considered, the headcount index and the poverty gap reported by the World Bank still prove to be the most suitable indicator for this study. Further, restricting the data to using only one type of survey data, meaning either consumption or income for each country, goes a long way to address the problems.

6.2.1 Estimating missing values

A key obstacle remaining in the usage of PovcalNet data is the discontinuous measurement of poverty. To overcome this problem of missing data values, several methods are available to estimate the missing observations. This thesis applies the predictive mean matching (PMM) imputation method to estimate all missing values for 2004 and 2012. PMM is a widely used method for generating hot-deck imputations (Little, 1988). The method imputes the missing observations by "means of the nearest-neighbour donor with distance based on the expected values of the missing variables conditional on the observed covariates" (Vink, Frank, Pannekoek, & Van Buuren, 2014, p.62). PMM estimates the missing observation based on a value predicted by a linear regression model among a set of k values, the so-called donor pool. The value of the donor closest to the predicted value is imputed for the missing observation (Kleinke, 2018).

Marshall, Altman, and Holder (2010) find in their study that the imputation using PMM produced the least biased estimates for missing values. A key advantage of the PMM is that it

includes a non-parametric element, thus relying less on the parametric assumptions of imputation models (Marshall et al., 2010). In doing so, this method provides more robustness than a normal regression, even if the imputation model is misspecified, either due to non-linearity, heteroscedastic residuals, or non-normality (Morris, White, & Royston, 2014). Further, the imputations are limited to the observed values, making it a virtuous imputation method for this study.

However, the PMM imputation also has limitations. First, the quality of the PMM imputation depends upon the availability of near donors (Gaffert, Meinfelder, & Bosch, 2016). When no or only a few donors are available, the performance of the imputation may be reduced. This also depends upon the number of missing data values, expressed as a percentage of the observed values. Therefore, for smaller sample sizes, the size of the donor pool must be decreased. Since the sample size of this study is relatively small, the donor pool size should also be reduced. Additionally, countries with too many missing observations were removed from the sample to estimate reliable results, and only countries with sufficient available data measurements were included.

The PMM imputation is performed using the multiple imputations by chained equations (MICE) software function in R. This MICE algorithm has been found to work well in various simulation studies (van Buuren & Groothuis-Oudshoorn, 2011). Applying the MICE function, the imputations are generated using the PMM method. This thesis altered the application of the PMM method in a way that it applied it as a single imputation method. Instead of creating several datasets and taking the average, this study set k equal to one, meaning that one final dataset including all estimated values was created. The resulting imputations should account for the relations between the variables, and they should reflect the suitable amount of uncertainty about their true values (van Buuren & Groothuis-Oudshoorn, 2011). To ensure that the imputations are plausible, diagnostic checks examining the legitimacy of the estimates were performed. The resulting data set included the dependent variable (poverty headcount and poverty gap) and the control variables from 1996 to 2012.

6.3 Operationalisation control variables

This study includes covariates to control for social and economic factors that can influence national poverty. The control variables were identified based on previous studies and theoretical explanations for the relationship between trade liberalisation and poverty reduction.

This resulted in a final selection of four control variables, namely Rule of Law, Political Stability, Education, and Access to Credit are included. Two databases, the World Governance Indicators (WGI), and the World Development Indicators (WDI), were used to extract the data for the variables. The measurements and the data sources will be explained in the following, and a summary is provided in Appendix II.

6.3.1 World Governance Indicators

The first two control variables, *Rule of Law* and *Political Stability and Absence of Violence*, are retrieved from the WGI website, a dataset developed by Daniel Kaufmann and provided by the World Bank. The WGI include six proxies measuring the political and socio-economic environment in each country. Online data is available annually for the years following 1996. A major advantage of the indicators is that the proxies are based on over 30 individual data sources measuring various dimensions of governance. The data represent the perception of governance from multiple actors, including the public and private sector, experts from non-governmental organisations (NGOs), and surveys for citizens from all over the world (World Bank, n.d.). While this broad inclusion of sources has the advantage that the WGI provide an encompassing view of the situation in individual countries, the disadvantage is that the information sources are based on perceptions of the individual actors, making the data subjective to personal opinions.

Nevertheless, the six indicators produced by the WGI are mutually exclusive, which is a significant advantage since it reduces the bias of multicollinearity. Further, the measurements allow a dependable comparison between countries and time. Therefore, the WGI are considered a reliable source for the control variables Rule of law and Political Stability and Absence of Violence. The data of these two indicators are measured on a scale of -2.5 (weak) to 2.5 (strong) and the data are extracted for the years from 1996 to 2012.

Precisely, the first control variable, *Rule of Law*, summarises the perceptions "of the extent to which agents have confidence in and abide by the rules of society" (World Governance indicators, n.d., p.1). This concerns the quality of contract enforcement and property rights, obedience to police and court, and the likelihood of crime and violence. The second variable, *Political Stability and Absence of Violence*, captures the actor's perceptions of political instability and the prospect of violence, including terrorism.

6.3.2 World Development Indicators

The other two variables, *Education* and *Access to Credit*, are extracted from the World Development Indicators (WDI). This database is widely used by scholarly literature since it provides a standardized measurement of plentiful indicators. Further, the database is the most accurate and, thus, serves as a reliable source of control variables for this thesis.

The third control variable, *Education*, is operationalized as the primary completion rate, expressed as a percentage of the relevant age group. Precisely, it measures "the number of new entrants (enrolments minus repeaters) in the last grade of primary education […], divided by the population at the entrance age for the last grade of primary education" (World Bank, n.d., p.1). This data is calculated annually by the World Bank in collaboration with the UNESCO Institute for Statistics. It is used to measure the national performance of the education system.

The fourth control variable, *Access to Credit*, is measured as the domestic credit available to the private sector, expressed as a percentage of GDP. It refers to domestic credit supplied to the private sector by financial institutions and corporations (World Bank, n.d.). The indicator is sourced in collaboration with the International Monetary Fund (IMF) and financial statistics.

6.4 Descriptive statistics

A first step in the empirical analysis of quantitative data is an investigation of descriptive statistics. Summarizing the data provides first insights into the data and can help examine the assumptions' validity. Especially in the DiD method, inspecting the descriptive statistics is essential to ensure that the assumptions are not violated. Table 2 depicts the summary statistics for the treatment (GSP+) group, both before and after the treatment period. The table shows the raw observations regarding the dependent variables (poverty) and the independent variables (control variables). Additionally, the mean, standard deviation, minimum, and maximum are included.

Table 2.

Descriptive statistics for the Treatment group

	Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
2004	Poverty Headcount	13	0.1304579	0.0722904	0.0050455	0.2774628
	Poverty Gap	13	0.0465856	0.0312427	0.0047203	0.1233047
	Education	13	91.32095	11.87219	67.26301	112.0704
	Access to Credit	13	28.86266	11.01223	11.08177	48.15519
	Rule of law	13	-0.5127453	0.4982351	-1.244032	0.559696
	Political Stability & Absence of Violence	13	-0,6379294	0.8024394	-2.269416	0.7736713
2012	Poverty Headcount	13	0.0831788	0.0724	0.003525	0.2451751
	Poverty Gap	13	0.034012	0.0348232	0.0005403	0.1065268
	Education	13	95.89682	9.793984	75.51402	109.6682
	Domestic credit to private sector	13	37.6881	8.216138	25.30375	51.27565
	Rule of law	13	-0.6468473	0.584547	-1.689822	0.5196874
	Political Stability & Absence of Violence	13	-0.4423698	0.5875235	-1.40181	0.6384025

A simple comparison of the means shows that the poverty headcount and the poverty gap have decreased in the treatment group before and after the treatment. Yet, the poverty decline is only minimal. For the control variables, it can be observed that, on average, all values, besides Rule of Law, have improved. Education, Access to Credit, and Political Stability have improved.

Table 3 presents the same statistics for the control group. Similar to the observations of the treatment group, the data displays that poverty levels have decreased, and all control variables, besides Rule of Law, have improved. Observing those similar trends for both groups is a first indication that the control and the treatment group can be seen as comparable and follow similar trends.

Table 3.

Descriptive statistics for the control group

	Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
2004	Poverty Headcount	30	0.1367997	0.172164	0.0024618	0.5639585
	Poverty Gap	30	0.0400759	0.0551835	0.0002617	0.2337135
	Education	30	93.43529	9.638467	67.30166	109.3514
	Access to Credit	30	34.33608	21.93048	2.932649	90.53838
	Rule of law	30	-0.3526132	0.6074758	-1.406775	1.321666
	Political Stability & Absence of Violence	30	-0,3516589	0.7602015	-1.908292	0.9161835
2012	Poverty Headcount	30	0.0914053	0.1425946	0.0002515	0.5639585
	Poverty Gap	30	0.0337433	0.0678508	0.0000357	0.3240675
	Education	30	95.89763	8.487222	71.60604	107.5193
	Domestic credit to private sector	30	40.72311	26.92045	7.412754	104.2849
	Rule of law	30	-0.3879725	0.5957249	-1.200411	1.3919
	Political Stability & Absence of Violence	30	-0,3221156	0.7644259	-2.042074	1.1040

The comparison of descriptive statistics between the groups, before and after the treatment period, provides valuable insights. It can be observed that both groups had very similar mean poverty headcount and poverty gap values before the treatment period in 2004. Yet, after the treatment period, the poverty headcount differed more between the two groups. This simple observation raises the expectation that poverty levels have decreased more in the treatment group than in the control group. Yet, no inference can be based on the mere observance of descriptive statistics.

Additionally, the standard deviation (SD) measures the average distance between each observation and the mean. Thus, a low SD indicates that the data points are closer to the mean. A high SD indicates a spread distribution of the values. Tables 2 and 3 demonstrate that the poverty values of the control group are spread out over a broader range of values than the treatment group. This finding is similar for the control variables. While for Education, Rule of Law, and Political Stability, the SDs are very similar, the third control variable, Access to

Credit, demonstrates a higher SD for the control group, indicating that the treatment group has more homogeneous values for Access to Credit. In the control group, the domestic credit to the private sector has a much higher variability, meaning that, on average, the scores lie much further from the mean.

Furthermore, a vital advantage of this study is that not only cross-sectional but panel data is available. The data demonstrate that the mean poverty incidence is higher for the GSP+ countries than for the control group. This is confirmed in the scatterplot depicting the individual observations of the panel data for the treated and the control group. The graph also illustrates that the GSP+ countries have less scattered poverty measures than the control countries, which is confirmed by the previous inquiry of the SD. This is, however, not surprising since the control group comprises more countries and, thus, more variability.

6.4.1 Assumption checks

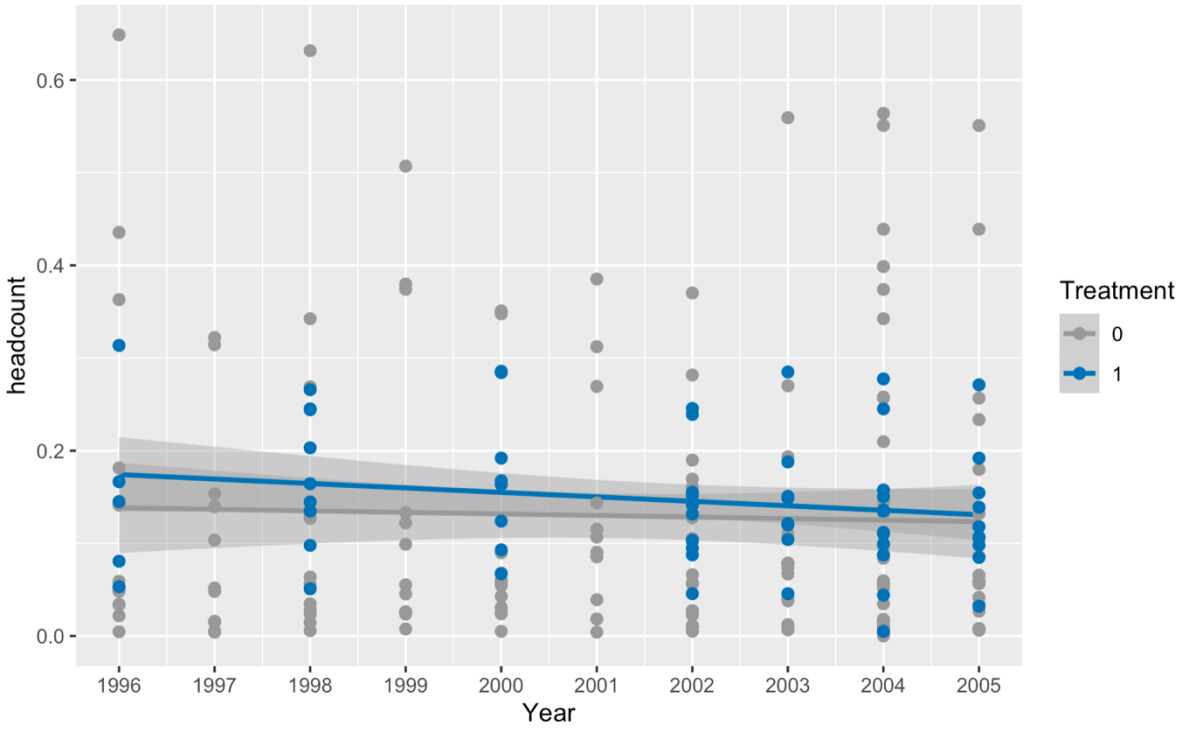
The fact that also panel data is available means that the parallel trend assumptions can be investigated more thoroughly. While there is no specific way to test the justification of this assumption, several checks can be performed to increase confidence that the assumptions are met and that the risk of bias is minimised. A first check is to examine whether the covariates are balanced between the control and the treatment group (Roth, 2019). To do this, the mean and the SD of all control variables should be compared across the two groups. Comparing the mean and the SD of the two groups for the respective period, the data demonstrate that small differences are existent but that, overall, the covariates are balanced. This increases the certainty that the parallel trends assumption holds (Roth, 2019).

A second check is to inspect the panel data before the treatment. ***Figure 6*** includes a trend line for both groups. Comparing the value of 1996 – the beginning of the measurement – to the value of 2004 – the pre-treatment value – shows that the two groups had similar trends pre-treatment. The same results hold for model 2 (see Appendix III.) This observation further increases the confidence that the parallel trend assumption holds. The logic behind this is that if the control and treatment groups had parallel trends without treatment, this relation must have existed before treatment implementation (Kahn-Lang & Lang, 2020).

Figure 6.

Scatterplot for poverty headcount for treatment and control group

Figure 1



Additionally, some checks concerning the independent variables have to be performed. A first check is to preclude bias due to multicollinearity. As some variables might have a relationship, a correlation matrix was calculated to inspect the correlation between the independent variables.

Table 4.

Pearson's correlation of all independent variables

Independent variable	1	2	3	4	5	6	7
1. Education	1.00						
2. Access to Credit	0.07	1.00					
3. Rule of Law	0.22	0.39	1.00				
4. Political Stability & Absence of violence	0.11	0.20	0.60	1.00			
5. Treatment	-0.09	0.05	-0.13	-0.11	1.00		
6. Time	0.19	0.19	-0.02	0.04	0.08	1.00	
7. Treatment*Time	0.01	0.13	-0.10	-0.05	0.79	0.41	1.00

Table 4 presents the Pearson's pairwise correlation of all independent variables. The control variables are specified, as explained in section 6.3. The results demonstrate that the correlation between the independent variables is relatively low. Therefore, the test provides evidence that the variables are not strongly correlated and sufficiently distinct, ensuring that the independence assumption is satisfied. The highest correlation can be observed between the *DiD* estimator (Treatment*Time) and *Treatment*. However, this makes intuitive sense because *Treatment* is a factor of the *DiD* estimator.

Another relatively high correlation coefficient exists between Rule of Law and Political Stability. This is also not surprising since both control variables indicate the overall institutional quality of a country. However, the variables indicate two different aspects of the overall governance quality, and, as explained in section 6.3.1, the WGIs are mutually exclusive. Thus, the correlation between the variables is with a value of 0.6 still acceptable.

After having reviewed and controlled for potential biases, the model is applied to the data to estimate the impact and the effectiveness of the GSP+ policy. The results of the analysis will be explained in the next chapter.

7. Results

This section presents the empirical results of the DiD regression model developed in section 5.3. The model is applied to the control and treatment group data before (2004) and after (2012) the treatment period. Subsequentially, robustness checks were conducted to rule out any bias resulting from the operationalisation of poverty.

7.1 Results of the Differences-in-Differences Analysis

In Chapter 4, six hypotheses were formulated. The first two hypotheses presume a negative relationship between the GSP+ and poverty headcount and poverty gap. Two DiD regressions were run for both H_1 and H_2. The regression model was estimated using statistical software in R with the following equations:

$$Lm\ (formula = headcount \sim treated + time + DiD + education + credit + ROL + PSAV) \quad (3)$$

$$Lm\ (formula = povgap \sim treated + time + DiD + education + credit + ROL + PSAV) \quad (4)$$

Table 5 presents the main regression results for the poverty headcount and poverty gap analysis with equations (3) and (4), respectively. The table shows the DiD regression results with poverty outcome as the dependent variable measured either as poverty headcount (Model 1) or poverty gap (Model 2).

Table 5.

DiD regression output for model (1) and (2)

	Variable	Estimate	Standard Error	t-statistic	p-value
Model (1): Poverty Headcount	Intercept	0.6939785	0.1275669	5.440	0.000000593 (***)
	Treatment	-0.0412290	0.0370922	-1.112	0.2698
	Time	-0.0203898	0.0290960	-0.701	0.4855
	Time * Treatment (DiD)	0.0214149	0.0523405	0.409	0.6836
	Education	0.0055889	0.0013188	-4.238	0.0000613 (***)
	Access to Credit	-0.0015568	0.0006526	-2.386	0.0195 (*)
	Rule of Law	-0.0038958	0.0289413	-0.135	0.8933
	Political Stability and Absence of Violence	-0.0486437	0.0204810	-2.375	0.0200 (*)

Model (2): Poverty Gap	Intercept	0.2552662	0.0510085	5.440	0.00000339 (***)
	Treatment	-0.0070708	0.0148315	-0.477	0.6349
	Time	-0.0028144	0.0116342	0.242	0.8095
	Time * Treatment (DiD)	0.0023548	0.0209287	0.113	0.9107
	Education	-0.0021946	0.0005273	-4.162	0.0000806 (***)
	Access to Credit	-0.005366	0.0002609	-2.056	0.0431 (*)
	Rule of Law	-0.0058539	0.0115724	-0.506	0.6144
	Political Stability and Absence of Violence	-0.0176962	0.0081895	-2.161	0.0338 (*)

Significance levels are *** p<0.01, **p<0.05, *p<0.1

The variable of interest is the DiD estimate. As previously mentioned, in the regression outputs, the DiD variable indicates the isolated significance of the impact of the GSP+ on the respective poverty measurement. The results show that the effect of the GSP+ is insignificant in both models. For the first model, the DiD coefficient is 0.0214, suggesting a minimal increase in poverty headcount after the GSP+ treatment for the treated group relative to the control group. Specifically, switching from non-treated to treated (GSP+) increases the percentage of people living below the $1.9 line by 0.0214 percent. Yet, this is statistically insignificant with a p-value of 0.6836.

For the second model, the DiD coefficient equals 0.0023, indicating that poverty gap also increased by an insignificant amount in the treated compared to the control group. The results show that switching from control to treatment group means a 0.0023 percentage increase in the mean shortfall of income from the poverty line. While these results are insignificant, they still indicate that participating in the GSP+ might have a negative impact on poverty headcount and poverty gap.

Accordingly, Hypothesis 1 and 2 are rejected. The results show that the GSP+ arrangement did not significantly affect poverty in participating countries. These findings contradict the theoretical explanations outlined in chapter 3 and 4. In the following section, these surprising results will be further inspected.

7.2 Complementary policies

As for the control variables, hypotheses two to five expected each control variable to have a negative relationship with poverty levels, meaning that they significantly reduce poverty levels. To test those hypotheses, the significance of the individual covariates must be examined. Table 5 displays the coefficients and the significance for each control variable. The results show that education is significant at the 1 percent level. Access to credit, and political stability and absence of violence are significant at the 10 percent level, suggesting that they have a significant impact on poverty levels. Yet, the 10 percent level indicates that the results must be treated with caution. Only rule of law does not have a significant effect on poverty reduction (p-value > 0.1).

These results provide valuable insight into the complex relationship between complementary policies and poverty. Specifically, if the rate of primary education completion increases by one percent, poverty headcount decreases by 0.0056 percentage points, and poverty gap decreases by 0.0022. If access to domestic credit (expressed as a percentage of GDP) increases by one percent, poverty headcount decreases by 0.0016 and poverty gap by 0.0054. Lastly, for an increase of one unit in political stability and absence of violence, poverty headcount decreases by 0.0486 and poverty gap by 0.0177. Since the independent variables are measured in different units, it is important to keep in mind the differences between the measurement units.

The regression model for the poverty headcount has a residual standard error of 0.1105 with 78 degrees of freedom. The value for the multiple R-squared (R^2) is equal to 0.4122, and the adjusted R-squared is 0.3595. The R^2 value indicates the fraction of the variation in the dependent variable that is predicted by the independent variables. The related adjusted R^2 estimates the fraction of the variance explained, but it takes the sample size and the number of variables into account (Miles, 2014). Thus, it is an unbiased estimate and is often preferred over the multiple R^2. Accordingly, a higher value for R^2 indicates more accurate predictions and a better fitting model. Yet, there is no definition of what a ‘good’ value for the R^2 is. In this study, the adjusted R^2 of the regression model for poverty headcount is equal to 35.95%, which is relatively high. Together with an F-statistic of 7.814 and a highly significant p-value (p = 0.0000003801) of model (1), strong robustness and explanatory power are given.

The regression output for the model (2) with poverty gap as the outcome variable has a residual standard error of 0.0442 on 78 degrees of freedom, a multiple R^2 value of 0.3903, and a value of the adjusted R^2 equal to 0.3356. In order words, 33.56% of the variance can be explained by the independent variables in this study. The F-statistic equals 7.133 and the p-value is 0.000001395. As in model (1), this represents strong robustness and a high explanatory power of model (2). Additionally, the similarity of the outcome of both models indicates that the indicators are reliable. If the results had differed substantially between model (1) and (2), this would have raised doubt about the reliability of the poverty indicators. Yet, as the results show the same significance levels with very similar estimators, this increases the confidence in the correctness of the model and the reliability of the indicators.

In summary, the DiD regression analysis rejects Hypothesis 1, 2, and 3, meaning that the results suggest that the treatment effect of the GSP+, and the effect of Law, on poverty headcount and poverty gap are insignificant. However, Hypothesis 3 – 6 are failed to be rejected, indicating that higher levels of primary education completion rates, domestic credit to the private sector, and the political stability and the absence of violence significantly reduce poverty levels. This indicates that not the policy itself, but rather the policy environment influences poverty levels. The findings of this study thus suggest that the right policy environment is crucial to reduce poverty in developing countries.

7.3 Robustness Checks

To increase the confidence in the results of the analysis, a robustness check, applying an alternative operationalisation of the independent variable is performed.

As explained in section 6.2, the measurement of poverty is a much-debated topic. The complexity of poverty in individual countries and the many factors that influence poverty make it challenging to find one definite indicator that reliably compares poverty levels across countries. For this study, the headcount ratio and the poverty gap at the $1.9 poverty line were chosen to be the most suitable measurements. However, the many possible ways to measure poverty incite to perform a robustness test based on alternative measures. Especially because the poverty headcount and poverty gap concern a single dimension of poverty, it is valuable to perform the analysis for an additional poverty measurement. Thus, this study performs the differences-in-differences analysis based on the infant mortality rate (IMR) as a measure for

poverty to see whether the operationalisation influences the result of the treatment effect of the GSP+.

The IMR is a measurement of poverty that has been used in academic literature for a long time. It measures the number of deaths of children younger than one year old per 1000 live births (World Bank, n.d.). Several studies have advocated the use of IMR as a measure of poverty. A key advantage is that the IMR is highly correlated with many poverty-related metrics, such as income and health levels, and thus encompasses many dimensions of poverty (de Sherbinin, 2008). Further, the IMR measurement is standardized even in the poorest countries, making the data relatively robust and comparable.

Performing the linear regression with IMR as the independent variable shows very similar results to the analysis on poverty headcount. As for model (1) and (2), the model was implemented with the following equation:

$$Lm\ (formula = IMR \sim treated + time + DiD + education + credit + ROL + PS) \quad (5)$$

Error! Reference source not found. (Appendix III) shows that the results for the IMR are very similar to the poverty headcount and poverty gap model. The DiD estimator is insignificant and demonstrates a small increase in IMR in the treated countries compared to the non-treated countries. Furthermore, Education and Political Stability have a significant poverty-reducing impact. As in the previous models, Rule of Law does not have a significant impact on reducing poverty.

However, there are some discrepancies between the models. First, the variable Access to Credit is insignificant in this model. In model (1) and (2), Access to Credit was significant at the 10 percent level. This indicates that the importance of access to credit has to be considered with caution. Nevertheless, as the variable is significant in two out of the three models, it can still be seen as an essential factor in the policy environment to decrease poverty levels. Further, the insignificance of Access to Credit can be due to the characteristics of IMR. Again, with a multiple R^2 of 0.4581, and an adjusted R^2 of 0.4095, the model has high explanatory power.

Following this robustness test, the confidence in the results is increased even more. Consequently, Hypothesis 1, 2, and 3 are rejected, and Hypothesis 4, 5, and 6 are failed to be rejected. In the following, these results will be discussed.

8. Discussion and Conclusion

This study assessed the role of the GSP+ special arrangement in reducing poverty. Based on theory and previous literature, it was hypothesized that the GSP+ policy would have a negative relationship with poverty levels, meaning that it would decrease poverty in its beneficiary countries. As one of the first studies to empirically test the effect of the policy on poverty levels, this study did not find a significant effect of the GSP+ on poverty incidence, poverty depth, or infant mortality rate. Thus, the findings indicate that the GSP+ policy did not fulfil its ultimate goal of reducing poverty.

Moreover, it was hypothesized that the policy environment in the beneficiary countries would affect poverty outcomes. The complementary policy indicators were identified by the level of Education, Access to Credit, Rule of Law, and Political Stability. The results show that the most important aspects were the level of education and Political Stability. Access to Credit was significant in two out of the three models, and Rule of Law was insignificant in all. The results demonstrate the importance of complementary policies for reducing poverty in developing countries.

However, it must be noted that empirical results about the effect of trade on poverty levels are mixed. While the review of economic literature suggests that PTAs reduce poverty through several channels (see Figure 3), empirical studies have found different results. Many studies have found that trade by itself does not decrease poverty and that the policy environment is of crucial importance. The results of the present study are comparable to this stream of literature. The results confirm the significance of three out of the four explanatory variables. These results provide valuable insight into the effectiveness of the GSP+ and the broader relationship between PTAs and poverty.

Observing those results raises the question of what the underlying reasons for the results are. The conceptual framework has presented the most important mechanisms through which the GSP+ could impact poverty. The results indicate that the relationship between the GSP+ and poverty, through the various channels, is subject to some obstacles. Unfortunately, a disadvantage of the DiD method is that it only provides the causal effect on the outcome variable without providing insights into the underlying mechanisms. Therefore, one can only

speculate about the possible reasons for the insignificance of the GSP+ in reducing poverty, and empirical evidence should be provided by future research.

A possible reason could be that countries are unwilling to rely on the terms of trade provided by the GSP+. As the criticism has often been voiced that the rule of origin principle and the graduation mechanisms make the preferential access volatile, countries may not want to rely on the European market and instead diversify their exports to other countries. Besides the volatility, the balance between costs and benefits could negatively affect the effectiveness of the GSP+ and the willingness of countries to rely on preferential market access. However, trade data by the EU suggests otherwise (European Commission, 2020b). The utilisation rate of the GSP+ policy is relatively high, which makes this explanation rather improbable.

A more likely proposition is that the benefits of trade following the GSP+ do not flow to the poor. The fact that education is highly significant is counter-arguing the theoretical explanations of the Heckscher-Ohlin model (see section 4.3.2). This theory advocates that the benefits of trade in developing countries will flow to unskilled labour. However, since poverty did not decrease, and since education is highly significant, it raises doubt about the validity of the H-O model. The importance of education in poverty reduction suggests that the benefits of trade may not directly flow to unskilled labour. A possible explanation would be that engaging in the GSP+ leads to technology spill-overs, which require skilled labour. Further, combined with the significance of Access to Credit, it could be a possible explanation that domestic companies invest in machines and capital, which require skilled labour and thus do not benefit the poor.

Another surprising result is the insignificance of Rule of Law. The results show that Rule of Law does not affect poverty. Linking Rule of Law to the conceptual framework of this study (Figure 3), it is apparent that the mechanisms linking trade and poverty do not concern any areas related to Rule of Law. Rule of Law captures the extent to which the population trusts and abides the rules of society and the enforcement of contracts, property rights, and police (World Governance indicators, n.d.). A logical explanation would be that people living in extreme poverty are often excluded from society and that Rule of Law does not impact the poor. Furthermore, *Table 4* shows that Rule of Law has the highest correlation with other variables. This collinearity could absorb the effect of Rule of Law, thus making it less

significant. Rule of Law might be an important channel, however, other factors absorb the explanatory power it has on poverty

In summary, those results provide valuable insights into the GSP+ policy and the importance of complementary policies and the institutional environment. In the following, the limitations, validity and, implications will be discussed.

8.1 Limitations

The DiD method is a powerful approach to estimate the causal effect of policies on specific outcomes of interest. The application of the technique has several advantages that make it the most suitable method for this thesis. Especially since poverty is a complex concept, which is influenced by numerous aspects, the DiD is the best method to isolate the impacts of the GSP+. Nevertheless, the present study has some limitations. These will be elaborated on in the following.

Despite the robustness tests and the combination of statistical techniques, which ensures high robustness and confidence in the results, the paper is subject to two main limitations. The first limitation is regarding the data collection. In general, the operationalisation of national poverty levels is subject to some caveats. Since the surveys used to measure poverty levels are not standardized, comparing countries could introduce some bias. To overcome this, this study used three different measurements for poverty levels. Since all three models provide very similar results, the confidence about the inference and the conclusions is increased.

The second limitation is regarding the parallel trends assumption (see section 5.4), which requires that poverty trends are the same for the control and treatment group. Since this assumption cannot be formally tested, it is difficult to justify. Yet, panel data allow a thorough inspection of the pre-treatment data to increase confidence about the fulfilment of this assumption. The bivariate analysis of the panel data showed that the parallel trends assumption was only partly satisfied, as there were often seemingly random spikes in the data. Yet, the two groups present, on aggregate, the similar trends. Both groups have parallel negative slopes, which speaks for the realisation of the parallel trends assumption. Yet, it is a general limitation of the DiD that the parallel trend assumption cannot be formally tested. And since the availability of panel data allows at least some insight, and the application of the Mahalanobis distance ensures similarity of groups, the confidence in the model is still very high. Further,

despite the limitations, the results provide rich insights into the policy and suggest novel avenues for future research, which will be discussed in the next section.

8.2 Validity

8.2.1 Internal validity

Several studies found that the DiD research design provides robust causal effects (Somers, Zhu, Jacob & Bloom, 2013). Furthermore, to ensure high internal validity, Clair and Cook (2015) provide several recommendations for studies to increase confidence in the causal results of the DiD method. This study has followed their recommendations and has performed an additional robustness check to have confidence in the causality of the relationship between the GSP+ and poverty. Graphically examining the parallel trends assumption, carefully selecting and justifying the comparison group, including control variables, and being careful in not conditioning on post-treatment outcomes goes a long way to address the limitations and ensure high internal validity.

8.2.2 External validity

However, due to the small sample size and the focus on one specific PTA, the results of the analysis of the GSP+ on poverty levels cannot be generalized for other PTAs. The finding of this study hold only for the GSP+ special arrangement for the period from 2004 to 2012. Nevertheless, the analysis contributes to the discourse of the overarching topic of trade and poverty, and more specifically, to the effect of PTAs on poverty. Even though the results do not hold for other specific PTAs, the study presents a reliable approach to estimating the impact of a specific policy on poverty, which can be applied in future research to study the effect of similar trade policies. Thus, the results are of significance not only to EU policymakers but also to the broader academic field studying the relationship between trade and poverty. In the following, the implications for policymakers and academic literature regarding future research will be discussed.

8.3 Implications

The motivation to analyse the impact of the GSP+ policy on poverty reduction was derived from practical and academic demands. On the one hand, the results have direct implications for policymakers, especially those of the EU. On the other hand, the results provide valuable insights into the overall theoretical mechanisms of PTAs and their effect on poverty levels. This will be elaborated on in the following.

8.3.1 Implications for academics and future research

On the academic side, the relationship between trade and poverty levels has been a much-studied subject in recent years. Yet, even though many studies have tried to pin down the exact channels by which trade can decrease poverty, results are mixed. Especially the relationship between PTAs and poverty reduction poses a gap in the literature. From a theoretical point of view, the analysis of this thesis demonstrated that the GSP+ per se does not reduce poverty. The results are counter to theoretical expectations and are thus surprising. A disadvantage of the DiD method is that it is only possible to examine the impact on the outcome of interest, which is poverty in this case. No conclusion about the mechanisms linking the PTA with poverty reduction can be drawn.

This provides a valuable avenue for future research. More research is needed to understand the interplay of trade on poverty in general and preferential trade more specifically. This thesis contributes an encompassing framework for the theoretical links of preferential trade and poverty. Thus, this thesis calls for future research to investigate the individual mechanisms linking trade and poverty, outlined in Figure 3.

Furthermore, future research is required to investigate the GSP+ policy. Since this study focused on the period from 2005 to 2012 only, research examining the policy after the reforms in 2012 is necessary. Especially since the GSP+ has undergone substantial changes in 2012, which aim to improve the reliability of the policy and the effectiveness on sustainable development, it would be interesting to perform a study for the period following 2012. A comparison of the results of this present study to future studies on more recent data would deliver valuable insights into the improvement of the GSP+ over time.

8.3.2 Implications and recommendations for policy

Besides implications for future research, the findings of this study have valuable insights and implications for policy. The findings make further investigation in this field a promising undertaking. For policymakers, conducting research to understand the mechanism of the policy and its impact in the participating countries is crucial to modify the policy in a way that can have a positive impact on poverty levels. Understanding the link between NTPs and trade flows on poverty is crucial for policymakers to formulate PTAs in a way that maximises effectiveness and minimises poverty.

On the one hand, the study includes implications for EU policymaking. The findings show that it is crucial to ensure that the GSP+, and other trade policies of the EU, are coupled with supportive policies. Because this study has operationalised the variables similar to studies undertaken by the EU, the findings are transparent for EU policymakers. The results have shown that the arrangement of the GSP+ policy is insufficient to reduce poverty in participating countries effectively. These findings suggest several recommendations for future EU trade and development policy. First, the EU should include NTPs beyond human and labour rights and environmental and good governance provisions. Particularly, the focus should be on improving education, financial credit to the private sector, and political stability. A possible channel in which the EU could achieve this would be to include those provisions as additional conventions, which participating countries must ratify and implement.

On the other hand, the findings are relevant for GSP+ beneficiary countries. The results have shown that trade per se is insufficient to reduce poverty. Thus, participating countries' governments must ensure that education is attainable for the entire population. Further, national governments must safeguard that domestic firms have access to credit to exploit the opportunities offered by the GSP+ policy. Only if those institutional settings are effective can poverty be reduced.

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Appendix

I. Countries included in the analysis

Treatment group (GSP+ beneficiaries)	Control group
1 Bolivia (BOL)	1 Argentina (ARG)
2 Colombia (COL)	2 Armenia (ARM)
3 Costa Rica (CRI)	3 Brazil (BRA)
4 Ecuador (ECU)	4 Botswana (BWA)
5 Georgia (GEO)	5 Chile (CHL)
6 Guatemala (GTM)	6 Congo, Republic (COG)
7 Honduras (HND)	7 Dominican Republic (DOM)
8 Sri Lanka (LKA)	8 Egypt (EGY)
9 Mongolia (MNG)	9 Fiji (FJI)
10 Nicaragua (NIC)	10 Ghana (GHA)
11 Peru (PER)	11 Indonesia (IDN)
12 El Salvador (SLV)	12 India (IND)
13 Venezuela (VEN)	13 Iran (IRN)
	14 Jamaica (JAM)
	15 Jordan (JOR)
	16 Kazakhstan (KAZ)
	17 Kenya (KEN)
	18 Morocco (MAR)
	19 Moldova (MDA)
	20 Mexico (MEX)
	21 Nigeria (NGA)
	22 Paraguay (PRY)
	23 Russian Federation (RUS)
	24 Seychelles (SYC)
	25 Tajikistan (TJK)
	26 Timor-Leste (TLS)
	27 Tonga (TON)
	28 Tunisia (TUN)
	29 Uruguay (URY)
	30 Vietnam (VNM)

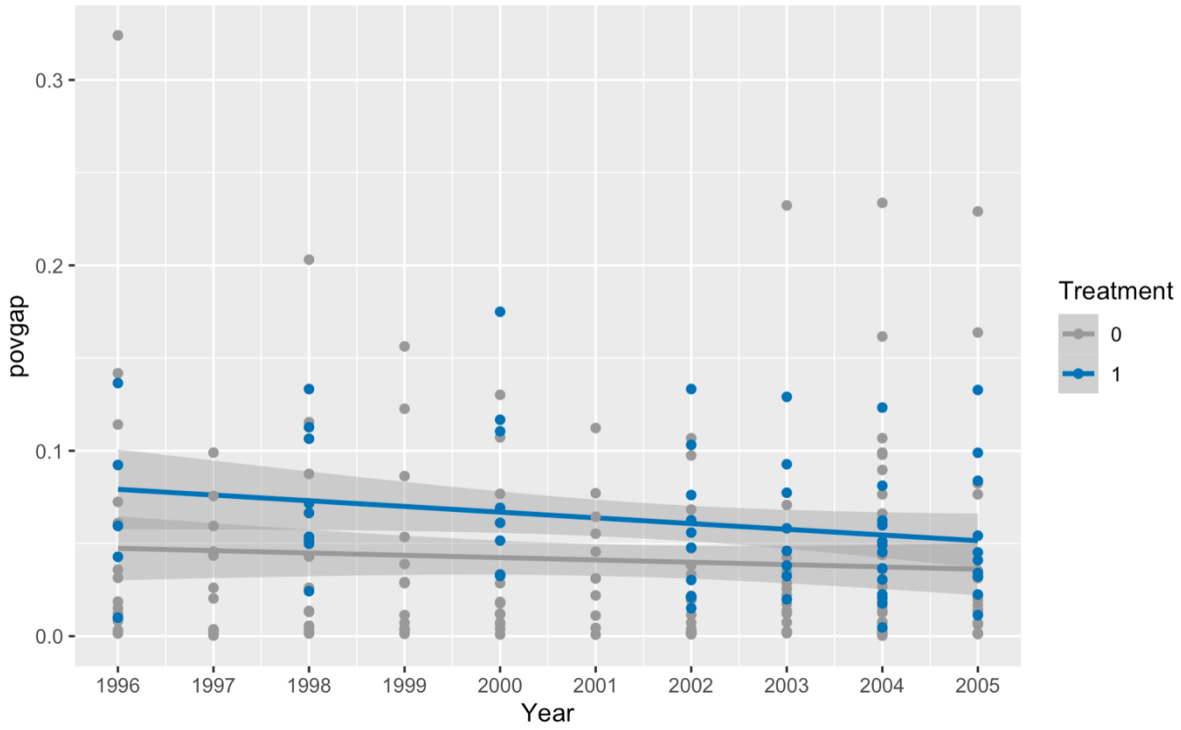
II. Sources of data

Variable	Indicator	Database
Poverty Headcount	Number of people living below the $1.9 poverty line	The World Bank Group. (2021). PovcalNet. Retrieved April 20, 2021, from: http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx
Poverty Gap	Mean shortfall of the poor from the $1.9 poverty line	The World Bank Group. (2021). PovcalNet. Retrieved April 20, 2021,from: http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx
Infant Mortality Rate	Annual infant mortality rate (IMR	Word Development indicators . (2021). World Bank Group. Retrieved April 21, from: https://databank.worldbank.org/source/worldevelopment-indicators
Education	Primary completion rate, total (% of relevant age group)	World deployment indicators . (2021). World Bank Group. Retrieved April 21, from https://databank.worldbank.org/source/worldevelopment-indicators
Access to credit	Domestic credit to private sector (% of GDP)	World deployment indicators . (2021). World Bank Group. Retrieved April 21, from https://databank.worldbank.org/source/worldevelopment-indicators
Rule of Law	Rule of Law	World Governance Indicators (2021). World Bank. Retrieved April 21, from https://info.worldbank.org/governance/wgi/Home/Reports
Political Stability & Absence of Violence	Political Stability & Absence of Violence	World Governance Indicators (2021). World Bank. Retrieved April 21, from https://info.worldbank.org/governance/wgi/Home/Reports

III. Graphical representation Poverty Gap (Model 2)

Figure 7.

Scatterplot for poverty gap for treatment and control group



IV. Results Infant mortality rate (Model 3)

Table 6.

Regression results for infant mortality rate

Variable	Estimate	Standard Error	t-statistic	p-value
Intercept	94.0261	14.6615	6.413	0.0000000101 (***)
Treatment	-10.6414	4.2631	-2.496	0.0147 (*)
Time	-4.9892	3.3441	-1.492	0.1397
Time * Treatment (DiD)	1.6089	6.0156	0.267	0.7898
Education	-0.6647	0.1516	-4.385	0.0000358(***)
Domestic credit to private sector	-0.1101	0.0750	-1.468	0.1462
Rule of Law	-3.6588	3.3263	-01.100	0.2747
Political Stability and Absence of Violence	-4.8631	2.3539	-2.066	0.0422 (*)

Significance levels are *** p<0.01, **p<0.05, *p<0.1