

**Czech University of Life Sciences Prague**  
**Faculty of Economics and Management**  
**Department of Economics and Management**



**Master Thesis**  
**Fairtrade Certification of Coffee in Uganda**

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**CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE**

Faculty of Economics and Management

## **DIPLOMA THESIS ASSIGNMENT**

B.Sc. Akinola Raphael Ogunseye, BSc

Economics and Management

Thesis title

**Fair Trade Certification of Coffee in Uganda**

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### **Objectives of thesis**

The aim of this thesis is to assess the effect of fair trade certification on the export of coffee in Uganda  
Specific Objectives · To explore the implementation of fair trade certification on coffee production in Uganda · To identify the impact of fair trade certification on coffee export in Uganda

### **Methodology**

The comparative methodology will be adopted for this research. Secondary data on fair trade certification and coffee production and export in Uganda will be acquired from International Coffee Organization (ICO), World Bank and Food and Agriculture Organization of the United Nations (FAO). A literature review from various scientific databases such as Web of Science and Scopus, will also be employed.

**The proposed extent of the thesis**

60 – 80 pages

**Keywords**

Fair Trade, Fairtrade Certification, Coffee, Coffee production, Coffee export, Coffee Farmers, Uganda

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**Recommended information sources**

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- Valetto, P., Nagel, T.K., Moreno, H. and Mills, J., 2021. Systematic Literature Review on the effect of fair-trade certification on rural coffee farmers' earnings and educational outcomes.

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### **Declaration**

I declare that I have worked on my bachelor thesis titled " Fairtrade Certification of Coffee in Uganda" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the master's thesis, I declare that the thesis does not break any copyrights.

In Prague on 31<sup>st</sup> March 2023 \_\_\_\_\_

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# Fairtrade Certification of Coffee in Uganda

## Abstract

This study examined the impact of Fairtrade certification on coffee production, income, and export in Uganda using comparative and descriptive research methods and secondary data from the International Coffee Organization. The results showed that Fairtrade certification has a significant positive effect on the income of coffee farmers in Uganda, with certified farmers receiving higher mean prices than non-certified farmers. There was also a significant difference in the total coffee production of certified and non-certified coffee farmers in Uganda, indicating that Fairtrade certification positively impacts coffee production. Additionally, Fairtrade certification has a positive impact on coffee export, as indicated by the significant difference in the mean coffee exports of certified and non-certified farmers in Uganda. These findings highlight the potential benefits of Fairtrade certification for coffee farmers in Uganda and emphasize the importance of paying fair prices to farmers. The study's results could guide policy formulation to promote Fairtrade certification in Uganda's coffee industry, ultimately enhancing smallholder coffee farmers' welfare. Further research could explore the sustainability of these impacts and identify potential challenges and opportunities for scaling up Fairtrade certification in Uganda's coffee industry.

**Keywords:** Coffee, Fair trade, Income, Production, Export, Price, Certification, Premium

## Fairtrade certifikace kávy v Ugandě

### Abstrakt

Tato diplomová práce zkoumá dopad certifikace Fairtrade na produkci, příjmy a export kávy v Ugandě. Výzkum je proveden s pomocí srovnávacích a deskriptivních výzkumných metod s použitím sekundárních údajů Mezinárodní organizace pro kávu. Výsledky ukázaly, že certifikace Fairtrade má významný pozitivní vliv na příjmy ugandských pěstitelů kávy, přičemž certifikovaní farmáři dostávají vyšší průměrné ceny než necertifikovaní farmáři. U celkové produkce kávy certifikovaných a necertifikovaných pěstitelů v Ugandě byl také zjištěn statisticky významný rozdíl, což naznačuje, že certifikace Fairtrade pozitivně ovlivňuje produkci kávy. Vedle toho má certifikace Fairtrade pozitivní dopad také na export kávy, což ukazuje významný rozdíl v průměrném vývozu kávy certifikovaných a necertifikovaných farmářů. Tato zjištění podtrhují potenciální výhody certifikace Fairtrade pro pěstitele kávy a rovněž vyzdvihují důležitost dosažení spravedlivých cen pro farmáře. Výsledky studie by mohly sloužit jako vodítko pro formulaci politiky na podporu certifikace Fairtrade v ugandském kávovém průmyslu, což by v konečném důsledku zlepšilo podmínky drobných pěstitelů kávy. Další výzkum se může zaměřit na udržitelnost těchto dopadů a identifikovat potenciální výzvy a příležitosti pro rozšíření certifikace Fairtrade v ugandském kávovém průmyslu.

**Klíčová slova:** Káva, Fair trade, Příjem, Výroba, Export, Cena, Certifikace, Premium

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# 1. Introduction

Agriculture plays a crucial role in Uganda's economy, accounting for approximately 22% of the country's US\$ 30 billion GDP in 2018 (Uganda Bureau of Statistics [UBOS] 2019) and contributing to over one third of its total exports in the same year. While coffee, tea, and tobacco are considered as cash crops, they occupy a relatively small portion of the agricultural land compared to food crops. Nevertheless, they are essential income generators for a significant number of Ugandan farmers, making the sustainability of these crops a priority for policymakers and their development partners.

According to Killeen and Harper (2016), coffee is widely grown across the globe, with Africa contributing 12% to the world's total production (Bongase, 2017). Uganda, the second largest producing country in Africa after Ethiopia, has depended on coffee as a labour-intensive industry that employs more than 100 million people in 60 developing countries, as reported by Bjornlund et al. (2020). Since 1961, coffee has been a significant contributor to Uganda's economy, providing employment to over 12 million people (ICO, 2019) and generating US\$492 million in export revenues in 2018 (UCDA, 2018). Coffee's current annual export revenues globally exceed US\$17 billion, contributing 1.5% to Uganda's Gross Domestic Product (GDP) in 2019 (ICO, 2019). With Uganda's contribution of over 31.24% of total coffee exports from Africa, the country is among the major coffee exporting nations worldwide (FAOSTAT, 2018).

Fair Trade (FT) certification is a system that aims to promote fair and sustainable practices in the production and trade of goods. It seeks to improve the lives and working conditions of marginalized producers in the developing world by guaranteeing a fair price for their products, providing access to better working conditions and protecting the environment (Sadekin et al., 2022). The FT certification system operates by setting standards and guidelines that ensure producers receive a fair price for their goods, which covers the cost of production and provides a living wage (Franceschetti, 2022). This enables producers to invest in their businesses, communities, and the environment. Additionally, FT ensures safe working conditions for producers and prohibits child labour and other exploitative practices.

The FT certification system covers a wide range of products, including coffee, tea, cocoa, sugar, fruits, and handicrafts. It is designed to support small-scale producers and cooperatives who are often excluded from the global economy and face unfair competition from larger producers (Franceschetti, 2022). Overall, the FT certification system plays a crucial role in promoting sustainable development, poverty reduction, and social justice. By supporting FT-certified products, consumers can contribute to creating a more equitable and sustainable world.

Coffee is an integral aspect of the Fair trade conversation, as it was not only the first product to receive a Fair trade label, but it is also one of the few Fair Trade commodities that are listed on the stock exchange (Lång, 2020). This makes it easier to understand the impacts of the Fairtrade Minimum Price and Premium. Despite the steady growth of the global coffee market, driven by increasing consumption in emerging economies and coffee-producing countries, the coffee sector is currently facing numerous challenges. These challenges are endangering the livelihoods of millions of coffee farmers who are constantly striving to receive fair compensation for their commodity. While coffee companies have benefitted from the volatility of world coffee prices, coffee producers have seen a decrease in their share of the final retail value of coffee (Voorra et al., 2019). This disparity highlights significant differences among actors in the coffee value chain.

This study has been designed to investigate the effects of Fairtrade certification on coffee production in Uganda. Its aim is to encourage dialogue around the benefits of Fairtrade coffee and how it can increase the participation of small farmers in the global market.

## **2. Objectives and Methodology**

### **2.1 Objectives**

The main aim of this thesis is to assess the effect of Fairtrade certification on the export of coffee in Uganda

The specific objectives of the thesis are:

1. To identify the effect of Fairtrade certification on income of the coffee producers in Uganda
2. To investigate the effect of Fairtrade certification on coffee production in Uganda
3. To identify the impact of Fairtrade certification on coffee export in Uganda

### **2.2 Methodology**

Uganda was chosen as the study location for this research due to the fact that agriculture represents Uganda's largest economic sector, accounting for 71% of the country's employment and 28.2% of the GDP in 2017 (FAO, 2019). Its major agricultural products can be categorized as cash crops, food crops, and livestock. Cash crops include coffee, tea, cotton, tobacco, and horticultural crops such as fruits, vegetables, and flowers. Coffee is the leading cash crop as a major foreign earner.

The research utilized two different methods, namely comparative and descriptive, to achieve its objectives. In the initial stage, extensive literature review was conducted on Fair Trade, with specific emphasis on the Fairtrade certification and the coffee production industry. This literature review provided an understanding of the various issues related to Fair Trade and enabled me to identify the gaps in the existing literature. In the practical part of the study, financial data related to coffee production in Uganda was analysed.

The economic and social development of coffee farming in Uganda was also analysed as well as the impact of Fairtrade certification on the income of coffee farmers. This analysis involved a comparison of the income levels of certified and non-certified coffee farmers, with the aim of determining whether Fairtrade certification resulted in an increase in income for coffee farmers. Overall, the research aimed to provide insights into the effectiveness of Fairtrade certification in improving the livelihoods of coffee farmers in Uganda.

Secondary data between a time frame of 2000 and 2019 on fair trade certification and coffee production and export in Uganda were acquired from International Coffee Organization (ICO), World Bank, Food and Agriculture Organization of the United Nations (FAO). Food and Agriculture Organization Corporate Statistical Database (FAOSTAT), the International Trade Centre (ITC), and the US Department of Agriculture (USDA).

### 2.2.1 ANOVA analysis

ANOVA analysis was conducted to identify significant differences in key metrics such as coffee total production volume, exports, prices paid to farmers, and income of farmers. This will provide valuable insights into the effects of Fairtrade certification on the industry. The results of the ANOVA analysis will, therefore, enable policymakers and stakeholders in the coffee industry to make informed decisions aimed at promoting the growth and development of the industry, improving the income of coffee farmers, and enhancing the livelihoods of their families.

The ANOVA model is given as:

$$Y_{ij} = \mu + \alpha_i + \epsilon_{ij} \quad (1)$$

where:

$Y_{ij}$  is the response variable for the  $j$ th observation in the  $i$ th group

$\mu$  is the overall mean of the response variable

$\alpha_i$  is the effect of the  $i$ th treatment or group ( $i = 1, 2, \dots, k$ )

$\epsilon_{ij}$  is the random error term for the  $j$ th observation in the  $i$ th group

### 2.2.2 Regression analysis

Regression analysis was conducted to provide a clear understanding of the relationships between prices paid to certified farmers and coffee total production. By identifying these relationships, the study can provide valuable insights into the impact of Fairtrade certification on the coffee industry in Uganda.

The regression model is given as:

Dependent variable (Y) = Coffee total production

Independent variables (X) = Prices paid to certified farmers

Regression equation is provided as:

$$Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_kX_k + u \quad (2)$$

Where Y = Coffee total production

$b_0$  = Constant

$b_1, b_2, \dots, b_k$  = the regression coefficients which interpret the effect of X on Y

X = independent variables

$X_1$  = Prices paid to certified farmers

u = error term

### **3. Literature Review**

#### **3.1 Coffee Certification**

Coffee certification in general and in East Africa is still relatively new, with the first certification scheme Max Havelaar emerging in 1988, soon followed by the International Federation of Organic Agriculture Movements (IFOAM) in 1990 and Rainforest Alliance in 1993 (Millard, 2017). Given the dire production circumstances in East Africa, highly fluctuating commodity prices on the international coffee market, combined with the mainly financial incentives connected with certification schemes, the growth of the certified market share in East Africa increased rapidly. In 2014, roughly 26% of globally sourced certified coffee came from this region. This success story had a short interruption around the turn of the millennium mainly caused by newly emerging pest and diseases, faulty management and corruption and aging coffee trees (Mueller, 2019).

In this specific case of the Ugandan coffee sector, the certification bodies are mainly addressing small-holder co-operatives organized in democratic farmer unions across the country producing both Robusta and/or Arabica coffee. For specifically this context, Ruben and Hoebink (2014) conducted an exhaustive overview of the different impact levels of certification schemes in small-holder farmers in the certified coffee sector. In the following, this overview will be summarized. Since the following research will focus mainly on the impact of specifically Fairtrade certification, a special focus is put on influences generating through this certification scheme.

The first level of impact of certification is on the level of the coffee plot itself, describing only very limited effects of Fairtrade certification on quality upgrading endeavours (Ruben & Zuniga-Aras, 2011), the second impact level is described as the impact on farm-level effects. Only a little or negative impact is found of Fairtrade certification on on-farm diversity or biodiversity (Philipott et al., 2007; Van der Vossen, 2005). The third level describes the effects on the household level, where Arnould et al. (2009) find marginal but positive effects of Fairtrade certification on the general level of health and education. On the fourth, and more important level for this research, they are explaining effects on the co-operative and between co-operative and member households. In this category fall effects of Fairtrade on cooperative societies, i.e. the influence on democratic internal organization and participation, where Elder et al. (2012) describe the central position of these aspects and the

importance to reach positive outcomes through certification. The fifth impact level describes effects on the community, e.g., through spill-over effects of Fairtrade premiums that are partly invested into community projects. And lastly, certification can affect the market and supply chain network. Sustainable improvements are scarce again in this impact level, due to too limited markets for too many certified crops (De Janvry et al., 2012). Even though certification in coffee production in East Africa is very popular, the effect of this certification is highly disputed. Social impacts of FT certification, however, is among the most positive and significant findings in literature.

### **3.2 Fair Trade**

Fairtrade (one word, with a capital F) is "a strategy for poverty alleviation and sustainable development, whose purpose is to create opportunities for producers and workers who have been economically disadvantaged or marginalised by the conventional trading system" (Fairtrade International, 2017). It is used exclusively for all the organisations, commodities and labels belonging to the Fairtrade International system. The latter works to guarantee that all the certificated products respect fair trade criteria and meet economic, environmental, and social standards.

Moreover, the Fairtrade Mark ensures fair and stable prices for small-scale farmers and guarantees a Fairtrade Premium that should be invested in developing and improving their cooperatives. The consumer is assured that a product is Fairtrade only when its logo appears. Most Fairtrade products are food and drinks, but it is possible to find handicrafts and textile products.

Fair Trade (two words, capital F, capital T) or fairly traded has a broader meaning, and it is used in three ways:

- a. to describe all the people who uphold and advocate Fairtrade and sustain local producers by encouraging the sale and consumption of local products.
- b. to describe any trading system which protects and is "fair" to producers - it could be ethical trade, the Fair-Trade movement, or fair trade products. Under this definition are included all the goods that, despite not having the Fairtrade Mark, are produced in compliance with fair criteria. One of the monitoring bodies which guarantee that



these commodities meet specific standards and, therefore, can be considered "fair trade" is the WFTO.

- c. as a substitute for "Trade Justice". This campaign, promoted by organisations such as Trade Justice Movement, seeks to ensure fully transparent and democratic trade policies to allow governments to choose the best solution to end poverty and protect the environment (Trade Justice Movement, 2018).

### **3.3 History of Fair Trade**

The evolution of fair trade, FT standards and certification goes back to the intention to control the rapid price decline in the price of primary commodities in international commodity markets in the politically unstable situation during and after the Second World War (Milner, 2021). The first fair trade networks and organizations can be traced back to religiously motivated support of selling handicrafts in the Global North produced in the disadvantaged Global South. Fairly traded coffee was introduced in the market in 1973 and soon made up for a bigger market share among FT goods than handicrafts and expanded the FT network further (Anderson, 2018). FT International, as it is known today, has its origins in the Netherlands in the NGO Solidaridad and the Max Havelaar Foundation, that was created in 1988 to make FT products marketable and sellable on the open commodity market in comparison to only very limited direct purchase projects (Mueller, 2019).

Accompanying certification requirements and standards were introduced to secure added social and symbolic value for producers worldwide. Since 1997 different organizations and initiatives, such as Max Havelaar, organized themselves as the Fairtrade Labelling Organizations International (FLO), agreeing to adhere to strict ILO Conventions (FLO, 2019). These conventions included non-discrimination policies, no child labour, no forced labour, freedom of association, collective bargaining for plantation workers, environmental sustainability, occupational health, and safety standards (Mueller, 2019).

In 2002, they were launching the FT certification mark (Figure 3.1), as it is seen still today in supermarkets e.g., for the biggest seven FT commodities: tea, bananas, orange juice, cocoa, honey, cane sugar, and coffee. This step was mainly taken to increase the visibility and awareness of FT among consumers. With this certification, FT small producer organizations agreed to be run by a General Assembly, based on democratic processes with voting rights for member households (FLO, 2019). In return, produced goods were sold with

a guaranteed minimum price and the FT premiums being paid to producers of primary goods. The Fairtrade Mark shows that a product meets the standards of:

- Fair prices
- Direct purchasing from producers
- Transparent and long-term trading partnerships
- Focus on development and technical assistance via the payment to suppliers of an agreed social premium (Zhang & Liu, 2020)



**Figure 3.1: The Fairtrade Mark**

Source: Fairtrade International (n.d)

In 1997 the Fairtrade Labelling Organisation (FLO) was setup to unite the national labelling initiatives and now “is a multi-stakeholder, non-profit organization focusing on the empowerment of producers and workers in developing countries through trade” (Zysk 2020). FLO is responsible for setting international Fairtrade Standards but also provides leadership, tools and services needed to connect producers and consumers (Bager & Lambin, 2020). In 2004, FLOCERT joined the FT family as inspection body to secure the application of standards and facilitating the certification procedures for producer organizations and the audits for traders.

FLO-CERT is the independent Fairtrade certification company which “evaluates Fairtrade certification applications, verifies compliance with the Fairtrade Standards during audits, and decides whether Fairtrade certification can be granted or not” (Fair Trade

Glossary 2011). FT's mission is to "support small-scale producers and workers who are marginalized from the benefits of trade" (Fairtrade International, 2019). The goal is to ultimately reach a world in which producers of food and non-food products reach a sustainable Livelihood, can decide independently on their future and enjoy accompanying security in a volatile commodity market (Ruben, 2008). To reach this, FT pursues three long-term goals: make trade fair; empower small-scale producers and workers; and foster sustainable Livelihoods (Fairtrade International, 2019).

The Fairtrade Foundation (FF) is a National Fair-Trade Organisation (NFTO) formerly known as 'labelling initiative' and the UK member of FLO. It is responsible for licensing, marketing, business development and awareness raising in a defined geographical area (Mueller, 2019). FF was set up in 1992 by Oxfam, Christian Aid, CAFOD, Traidcraft, World Development Movement, and the National Federation of Women's Institutes. Since its inception it has added eight additional members including Shared Interest whose data is the basis of this study. In 1994 the first Fair Trade chocolate and tea was certified in the UK and by 1996 single origin and organic Fairtrade coffee was added (Raynolds, 2017).

The complete FT system as of today is made up of three regional producer networks representing farmers and workers across Africa and the Middle East, Asia and the Pacific, and Latin America and the Caribbean. These three regional producer networks are further divided into nineteen national FT organizations, and eight marketing organizations busy promoting FT products in different consumer countries (Fairtrade International, 2019). In the case of coffee production, FT certified organizations are mainly organized in small-scale producer organizations. Small-scale producer organization means at least 2/3 of members are small-scale producers on fields where a member grows a FT crop equal to or below 30 hectares. This, besides the democratic organization of the co-operative, including the General Assembly and votes, transparent and environmentally friendly processes, and the participation in regular audits are main certification requirements for small-holder producing organizations. The main benefits are a set FT minimum price, FT premium, a voice in decision-making, regulated working conditions,

FT market access, and prefinancing. FT minimum prices for Arabica coffee are US\$1.35\$ to US\$1.40 per pound of natural/washed coffee beans and for Robusta coffee US\$1.01 to US\$1.05 per pound of natural/washed beans sold on FT terms, plus 30 cents

extra if additionally, organic certified (Fairtrade International, 2019). With prices plummeting in 2001 to only 45 cents per pound of Arabica coffee, this minimum price is making a serious difference in a very volatile commodity market. On top of this, for each pound of coffee, Arabica and Robusta, 20 cents extra are paid in FT premiums to invest freely in one of the following four categories: quality improvement, economic development of the organization, social development, and the environment.

In the case of coffee, at least 5 of these 20 cents per pound must be invested in quality improvement. According to FT International, 112,000€ were paid in FT premiums on average to producer organizations in 2016 (Fairtrade International, 2019). FT demonstrated impressive growth in merely 30 years from a small organization in the Netherlands to a worldwide movement. With this expansion, the African continent, and therefore also Uganda, became an essential sourcing region for this newly evolving FT market.

### **3.4 Fair Trade players**

These players are the actors that constitute the Fairtrade movement. These are producers, FTOs, World shops, networks, labelling, and lobbying organisations. Below, we identify the characteristics that define each player. The division is not always clear, and this is reflected in the multitude of groupings that the authors make. Therefore, the following categories derive from a union of different works (DAWS, 2008, 2011; Moore, 2004; Randall, 2005).

#### **3.4.1 Producers**

Producer refers to any entity, either individuals (artisan) or small-scale producer organisations (made up of several workers), that supply fair trade products regardless of whether or not it has been certified under the Fairtrade Standard for Small Producer Organisations. Moreover, these organisations can be further subdivided into three categories: primary, secondary and support organisations. A primary organisation produces concrete products (either agricultural or craft) and its legal members are individual small-scale farmers. Instead, a secondary organisation describes a small-scale producer organisation that provides services. A support organisation offers assistance that is essential for a company's management. One requirement that must be met by all three is that of democracy. These organisations must demonstrate that they have democratic structures in place and that all

members have equal rights and vote in their decision-making process (Fairtrade International, 2019).

### **3.4.2 FTOs**

Fair Trade Organizations, once known as Alternative Trading Organisations, are those organisations located in Northern countries that "act as importers, wholesalers and retailers of the products purchased from the Southern producer organisations" (Moore, 2004). Under this category falls all the European national ATOs which emerged during the 80s and 90s that later came together and originated the EFTA. The term organisation is commonly used by various authors DAWS (2008), Huybrechts (2010), and Moore et al. (2009) because it is the most encompassing and neutral term. However, there is no unanimity among authors: Reed et al. (2010) describe them as Fair Trade businesses, while Zhang et al. (2020) as Fair Trade companies. Nevertheless, regardless of the name used, all of these firms share three characteristics:

- a. A total commitment to selling Fair Trade products.
- b. Personal and direct relationships with small-scale producers to strengthen their capacities and improve their livelihoods. This criterion is not always applicable to large FTOs since they have partnerships with several producers, so they sometimes have to rely on intermediate structures (Huybrechts, 2010).
- c. Using education and advocacy work to enhance the Fair-Trade movement.

### **3.4.3 World shops**

World shops are specialised retail outlets established primarily in Europe to sell Fair Trade products from developing countries. These "not-for-profit" organisations have formed associations at the national level to regulate and coordinate their cooperation. Instead, at the European level, they are united under the umbrella of WFTO-Europe (formerly NEWS!). They act not only as retail shops, but they also actively campaign, organise educational Fair-Trade activities for the public and lobby at the local and international level to raise awareness of Fair Trade. In this work, World shops have been considered different from FTOs. In reality, as emerged from Moore's definition of FTOs, often these two players tend to merge into one single organisation (DAWS, 2008). One example is in Italy, where many of the World shops are run by Altromercato, the main FTO of the country.

#### **3.4.4 Network Organisations**

Under this category falls the three networks, namely WFTO (formerly IFAT), EFTA and NEWS, that were created by European FTOs during approximately the last decade of the 20th century. A network is defined as a collection of Fair-Trade organisations whose aim is to provide "support, opportunities, information, a common meeting ground and access to the market" to its members" (DAWS, 2011). DAWS (2008) adds a fourth international network that, unlike the three above, is the only one located in the United States. The Fair-Trade Federation was founded in 1994 in Washington DC to bring together Fair Trade producers, wholesalers and retailers in the US and Canada.

#### **3.4.5 Labelling Organisations**

Since the end of the 1980s, fair trade actors started using a new resource, the label, to make fair trade products recognisable and, consequently, allow them to be sold in conventional stores. Through their standards and monitoring systems, these organisations ensure that every product marked with the label conforms to specific criteria. Moreover, the label is a guarantee not only for the producers, who will obtain some benefits from it but also for the consumer, who is sure to buy a commodity that will help disadvantaged communities. Many organisations came together to create the FLO in 1997, which is currently the largest Fair Trade labelling organisation. Under FLO, the national labelling initiatives are constantly expanding the Fair-Trade labelled product range allowing new workers and producers to become part of the movement.

#### **3.4.6 Lobbying Organisations**

Lobbying refers to the attempt made by Fair Trade organisations to persuade decision-makers to change regulations or adopt new ones to improve the movement's development. Lobbying is one of the main activities carried out by all Fair-Trade organisations at the local and international levels. We have already dealt with World shops that act as retail stores at the local level. In contrast, at the international level, one major organisation is the Fair-Trade Advocacy Office (FTAO). The latter was founded in 2004 as a joint initiative of FLO, WFTO, EFTA and NEWS!, but it became a legally-independent organisation only in 2010. Since it is made up of the European Fair-Trade networks, FTAO aims to "monitor and influence EU legislation, policies and their implementation" and "improve the livelihoods of marginalised producers and workers in the South".

### **3.4.7 Conventional organisations**

By conventional organisations, Moore (2004) refers mainly to supermarkets that stock and sell Fair Trade products. Despite not being directly involved and part of the Fair Trade movement, these stores are now fundamental in retailing Fair Trade products. They work together with Fairtrade to create sustainable livelihoods for farmers and workers in the supply chain. Moreover, they cooperate with Fair Trade organisations in the development and delivery of projects which positively impact marginalised communities. However, over the years, a number of these conventional organisations are starting to detach themselves from traditional Fair-Trade labels and begin to sell "own brand" Fair Trade products.

One recent case occurred in the UK in 2017 when the supermarket chain Sainsbury's, the largest retailer of Fairtrade products in the UK, launched its own label, "Fairly Traded", for tea products. The decision raised several criticisms since this new label failed to need high standards as third-party organisations, such as WFTO and FLO, negatively affecting millions of farmers and workers who will not be treated fairly (WFTO Europe, 2017). Moreover, the possibility of launching its certification logo in the market without any precise regulation or standard "makes it easy for companies to resort to the ruse of 'green-washing' – pretending to be ethical without really being anything of the sort" (Subramanian, 2019).

## **3.5 Fairtrade Practices**

Fairtrade practices is a concept that has been adopted by developing countries to be able to gain sustainable trade relationships. According to Elder, Zerriffi and Le Billon (2013), Fairtrade practices involve creating safe working environment, prohibiting discrimination and child labour, environmental protection, and eradicating poverty. The present study has adopted the mentioned practices in the belief that they have major impact on export performance of coffee factories.

### **3.5.1 Safe working environment**

Employees and/or members of the Fairtrade have been enjoying safe and healthy working environment which is advocated by the program. The program complies with national and local regulations with regard to employee working environment as well as ILO health and safety requirements, according to Djokoto et al., (2015). Working hours and conditions in organizations that comply with the fair-trade terms are in accordance with

national and local laws as well as ILO requirements for employees and/or members (including for homeworkers).

Fair Trade Organizations, according to Dolan (2010), are cognizant of the producer groups' health and safety concerns. They are always working to raise awareness of health and safety issues and to enhance health and safety practices in producer groups. Employees working with Fairtrade certified farms have various benefits which their counterparts in ordinary farms do not enjoy (Johannessen & Wilhite, 2010). Some of these benefits include requirement by Fairtrade standards that workers should receive minimum wages and should also have collective bargaining. Fairtrade premiums are also passed on to the workers of the certified farms. The Fairtrade certified farms also offer financial assistance to the needy children of the workers in addition to the demand that they should not hire child labour. Generally, Fairtrade seeks to uplift the livelihoods of workers employed in Fairtrade certified farms.

### **3.5.2 Prohibition of discrimination and child labour**

In an attempt to safeguard equality in workplaces, Fairtrade organizations do not discriminate on the basis of caste, race, country origin, handicap, religion, gender, union membership, sexual orientation, HIV/AIDS status, political affiliation, or age in employment, payment, access to training, promotion, termination, or retirement (Dragusanu, Giovannucci and Nunn, 2014). The organization provides opportunity for both men and women to enhance their talents and actively encourages women to apply for employment opportunities and leadership roles. Pregnant women and breast-feeding moms have unique health and safety needs, which are taken into account by the program.

The organization, according to Raynolds and Ngcwangu (2010), gives employees the freedom of engaging and joining a trade union that best fit their bargaining demands and that they have faith in so that in case of misunderstanding between employees and employer, the union will be a negotiating tool for reaching a consensus. In the context where politics and law constrain employees' rights to choose the trade union of their choice, where workers' rights to join trade unions and negotiate collectively are constrained by legislation or the political context, the organization will provide mechanisms for employees to engage in autonomous and free association and bargaining groups. This guarantees that employee representatives are not subjected to workplace discrimination.



According to Beuchelt and Zeller (2011), the Fairtrade program complies with the United Nations (UN) Convention on the Rights of the Child and national/local child labour laws. The organization assures that none of its employees, members, or homeworkers are subjected to forced labour. Organizations buying fair trade items directly by producer groups or via intermediaries verify the production process does not involve forced labour or that the producer adheres to the regulations provided by the United Nation's recommendations on how children can be involved in employment and their rights get protected accordingly. These organizations or buyers also conforms to the domestic specifications on child rights as far as forced labour is concerned. It is always published and made known on the right procedures to be followed on the involvement of children in inclusion into making products that conforms to fair trade specifications with an intention of safeguarding the education progress and wellbeing of children (Valkila and Nygren, 2010).

### **3.5.3 Environmental protection**

People in developing countries are always attempting to find a balance between optimum agricultural methods and environmental protection. Fairtrade Certification requires farmers and their networks to follow globally recognized environmental criteria. Producers that show a commitment to reforestation, environmental education, and water conservation will be rewarded financially under the scheme (Marshall, 2016). Producers are urged to protect and safeguard the environment, which includes natural water resources, virgin forest bodies, soil erosion and management waste. Farmers that advocate ecologically friendly farming techniques benefit from fair trade. These farmers are expected to participate in environmental protection efforts. Fairtrade initiatives often compel farmers to create, execute, and monitor procedures that strike a balance between agricultural productivity and environmental preservation. They are urged to use chemicals that are less harmful to the environment.

### **3.5.4 Eradication of poverty**

The Fair-Trade movement works to alleviate poverty around the world through trade, according to Valkila and Nygren (2010), by working with disadvantaged communities and producers to create opportunities for them to develop their own businesses rather than handing out handouts in the traditional charity model. The challenge for many people trying to find a way out of poverty is that their own communities do not have the money to buy the products they can produce. What they need is access to markets of potential buyers and with

regard to Dragusanu et al., (2014), this is where the Fair-Trade movement has a key role to play. Fair Trade enterprises work with disadvantaged suppliers and producers from developing countries and connect them with markets in wealthier countries. This can be for simple commodity items like tea, coffee, and chocolate – items many of us are familiar with in regard to Fair Trade.

A case study of Traidcraft, a prominent FT organization with a purpose to fight poverty via trade, was conducted by Redfern and Snedker (2002) to evaluate the influence of the fair-trade movement in establishing market possibilities for small businesses and reducing poverty. The study established that small scale enterprises often produce beautiful quality items that are of great value to the right buyer. Fair Trade businesses help to present artisans work in markets at a value that is in line with the skill, artisanship and time required to create the goods. In addition to helping economically disadvantaged producers connect with markets for their goods. Fair Trade businesses work with producers on developing their business and drive them out of poverty by ensuring that they are good suppliers that meet the demands of the market. This can mean working on a broad range of things that often starts with practical operations like identifying the simplest and most cost-effective means of shipping or helping to set up secure systems for money management and transfer across borders (Johannessen & Wilhite, 2010).

### **3.6 Fair Trade principles**

There are general principles that apply to both Fair Trade labelled goods and most goods under Alternative Trading Organisation (ATO) brand names. Perhaps the most important is the price premium, where the price of a Fair-Trade product prices is guaranteed at a certain level. This level is either mutually agreed (ATO) or set in relation to world market prices (labelled goods). There is a Fair-Trade premium for social and environmental investment and a bonus if the product is organically produced. In the case of coffee, credit advances of 60% of the value of the coffee harvest value are given upon request. (Rifin & Naully, 2020)

Fair Trade producer organisations are either democratically organised associations of small growers or plantations where workers are fully represented by independent democratic

groups. Certification takes approximately 6 months and is followed up by yearly audits by independent monitors overseen by FLO. (Gale et al., 2017) During the time of the coffee crisis the agro-ecological requirements of Fair Trade were less demanding than those concerning organic agriculture. Requirements included the attempts to protect forests and wildlife habitat, prevention of erosion and water pollution, the reduction of chemical fertilisers and synthetic pesticide, and the composting of waste. The use of herbicides was forbidden in e.g., banana cultivation, but not in coffee production (Gale et al., 2017).

Regarding labour rights, Fair Trade criteria follow ILO conventions, with the emphasis on rights to association and collective bargaining, freedom from discrimination and unequal pay, prohibition of forced or child labour, minimum social and labour conditions, and the right to safe and healthy working conditions. (Gale et al., 2017) As an addendum one could highlight the fact, that after the crisis, almost all Fair-Trade labelled coffee also became organic, thus creating the perception among many farmers that Fair Trade was mostly about their product being "organic" as the Fair-Trade aspect for many remained quite obscure (Berry & Romero, 2021).

### **3.7 Fair Trade Coffee Market**

Coffee has been at the forefront of the fair-trade movement and generates the largest fair-trade sales. In 2014, Fairtrade International coffee accounted for 49 percent of all Fairtrade producer sales income (Fairtrade International 2015). Fairtrade International coffee comes from 30 countries (Fairtrade International 2017) and 80 percent of fair-trade coffee is consumed in Europe (Hudson et al. 2013). Fair trade coffee certification emerged during a time of drastic decreases in coffee prices (Renard 1999) and it expanded with the sales of certified coffee in corporate chains like Starbucks and Dunkin' Donuts in the United States and worldwide.

In the Fairtrade International system, out of 1.6 million Fairtrade International farmers and workers, about half of the Fairtrade producers cultivated coffee in 1.1 million hectares worldwide (Fairtrade International 2015). Fairtrade International coffee farmers cultivated 1.2 billion pounds of Fairtrade certified coffee in 2013-2014 and Fairtrade certified producer organizations sold 28 percent of their coffee as Fairtrade (Fairtrade International 2015).

Fairtrade farmers received US\$ 66 million in Fairtrade Premium, representing 47 percent of the total Fairtrade Premium distribution in 2014 (Fairtrade International 2015). Fairtrade International coffee farmers reported Fairtrade Premium investment in producer organizations (44%),<sup>23</sup> services for farmers (46%) and community (8%) (Fairtrade International 2015).

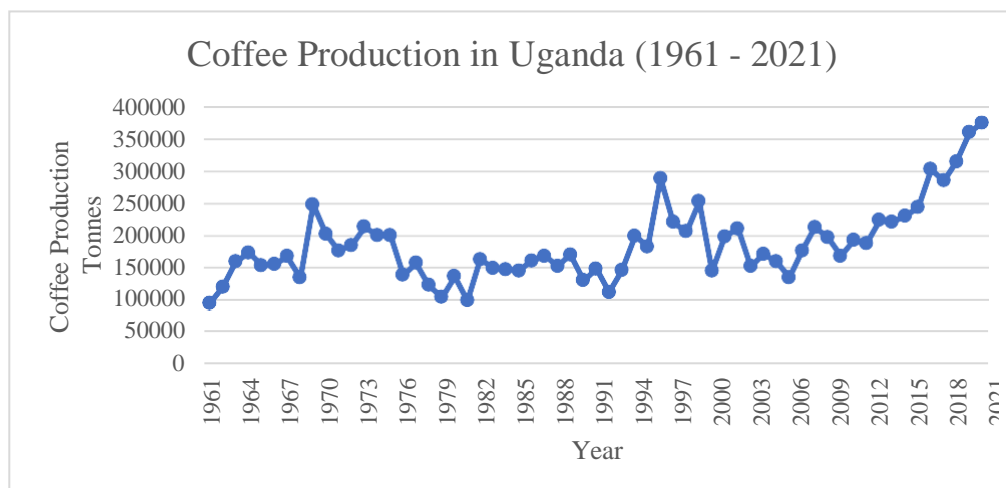
### **3.8 Coffee Production in Uganda**

Coffee has played an important role in the Ugandan economy for the past several decades, although coffee has been grown in Uganda even longer. Rosner (2014) quoted Aaron Davis's study showing that wild varieties of coffee have long been produced in Uganda, with some more than 100 years ago, noting that "some taste awful, but all of it produces a recognizable coffee-like aroma if you roast the bean". Uganda's wealth in the colonial period was concentrated among its southern peoples through the production of cotton and coffee as the country's primary cash agricultural commodities. Jun (2020) reported that through collaboration with southern chieftains, cotton and coffee became the first cash crops introduced in Uganda, enabling colonial leaders to cover basic costs through exports and focus on political stability. Because of the role of coffee in colonial Ugandan economy, coffee diseases and pests were also studied in the early 1900s (Krishnan, 2017).

There are four regions (Central, Western, Northern and Eastern) and 134 districts in Uganda. Coffee is grown in all four regions and almost all districts, with the exception of a few districts in the Northern and Eastern regions. Arabica is grown in three districts in the Western Region (Bundibugyo, Ntoroko, and Kisoro), two districts in the Northern Regions (Zombo and Nebbi), and eight districts in the Eastern Region (Bukumbuli, Kween, Bukwa, Kapcharwa, Sironko, Manafuwa, Bududa, and Mbale). On the other hand, Robusta is grown in all districts where coffee is grown, except for the Arabica-only districts. The topography of Arabica only districts hinders the effective production of Robusta. Districts where only Arabica is grown are limited to a few locations in the Eastern, Western, and Northern areas. In a selected few districts, mainly in the West Southern Regions, both species are produced, though the average coffee farm size is relatively small.

The trend in coffee production in Uganda from 1961 through 2021 is presented in Figure 3.2. The graph shows that Uganda's coffee production increased gradually from the 1960s to the early 1990s. It experienced a peak production of approximately 350,000 tonnes

in the early 1990s. However, production then declined significantly until the early 2000s, reaching a low of approximately 120,000 tonnes in the early 2000s. After that, production increased again to reach a new peak of around 374,000 tonnes in 2021.



**Figure 3.2: Coffee Production In Uganda (1961 – 2021)**

Source: FAOSTAT

Coffee prices are determined by its organoleptic properties, chemical composition, and bean morphology as a result of its supply and demand characteristics. As a result, Arabica commands a higher price in the market (Vega, 2008). Additionally, Ugandan coffee prices are determined by variety and grade in the domestic market. Grade is measured by quality and size of coffee beans. There exist 10 grades for Robusta and 33 grades for Arabica. The Robusta grades are mostly determined by size of bean, while the Arabica grades reflect place of origin (e.g., Sipi Falls, Mount Elgon, White Nile, etc.). According to the Uganda Coffee Development Authority (UCDA), in 2016/2017, the coffee with the highest quality Robusta grade was the Organic Robusta, with an average price of \$2.23 per kg (UCDA 2017). The ungraded (or other) Robusta grade, which was the lowest grade and price available, was priced at \$1.30 per kg (UCDA 2017). Sipi Falls was the highest priced grade of Arabica at \$3.96 per kg, while ungraded (other) Arabica grade had the lowest price at \$1.36 per kg.

## **4. Practical Part**

### **4.1 Data Preparation**

The data used for this analysis was obtained from a trusted source and provided a comprehensive picture of Uganda's coffee exports over a period of two decades (2000 – 2019). Secondary data was obtained through research and downloaded from a trusted source found in the database of the International Coffee Organization website. Secondary data is data that has already been collected by someone else for a different purpose, and it is often used in research studies and statistical analyses. The International Coffee Organization (ICO) is a specialized agency of the United Nations that aims to promote the sustainable development of the coffee sector. The ICO is a reputable source of information on coffee production, consumption, and trade, and its website contains a wealth of data on the global coffee market.

The data collected covers various aspects of coffee production and trade, including the total production volume, exports, prices paid to farmers, and the income of coffee farmers. Coffee total production volume is an important metric that provides insights into the overall coffee production levels in Uganda. The data collected from ICO can help to identify trends in coffee production, and how these trends are affected by Fairtrade certification. This information can be used to develop policies and strategies aimed at improving coffee production in the country.

Coffee export is another critical aspect of the coffee industry, as they generate foreign exchange earnings for Uganda. The data collected from ICO on coffee exports can be used to track the performance of the coffee industry in the global market, as well as to identify trends in export volumes and revenue generated. This information can be used to develop strategies aimed at increasing the value of coffee exports, and to promote the growth of the industry. Prices paid to farmers are a critical aspect of the coffee industry, as they directly affect the income of coffee farmers. The data collected from ICO on prices paid to farmers can be used to examine the impact of Fairtrade certification on the prices paid to certified farmers, as well as to non-certified farmers. This information can be used to identify the benefits of Fairtrade certification in terms of the prices paid to farmers, and to develop strategies aimed at improving the income of coffee farmers in Uganda.

The income of coffee farmers is a crucial aspect of the coffee industry, as it directly affects the livelihoods of coffee farmers and their families. The data collected from ICO on the income of coffee farmers can be used to examine the impact of Fairtrade certification on the income of certified and non-certified coffee farmers. This information can be used to identify the benefits of Fairtrade certification in terms of the income of coffee farmers, and to develop strategies aimed at improving the livelihoods of coffee farmers in Uganda.

## **4.2 Data Analysis**

The statistical analysis of the data is a crucial step in examining the effect of Fairtrade certification on coffee production in Uganda. To accomplish this, several statistical techniques were employed, including ANOVA (Analysis of Variance), Fischer's LSD (Least Significant Difference), and regression analysis. ANOVA is a statistical method that is used to determine whether there is a significant difference between the means of three or more groups. In this context, ANOVA can be used to compare the mean coffee production levels between farms that are Fairtrade certified and those that are not. This method can provide insights into the impact of Fairtrade certification on coffee production.

Fischer's LSD is another statistical technique that is used to compare the means of two groups. In the context of this research, Fischer's LSD can be used to compare the mean coffee production levels between Fairtrade certified farms and non-certified farms. This method can help to identify which groups have significantly different means, providing further insights into the impact of Fairtrade certification on coffee production.

Regression analysis is a statistical technique that is used to examine the relationship between two or more variables. In this context, regression analysis can be used to examine the relationship between price paid to certified farmers and coffee production levels as well as coffee exports. This technique can provide a deeper understanding of how Fairtrade certification affects coffee production and export and can be used to make predictions about future coffee production levels. The statistical analysis was conducted using Minitab software, a powerful statistical analysis tool that can handle large datasets and provide accurate results. Minitab was used to run the ANOVA and Fischer's LSD tests, as well as to perform regression analysis. The results of these tests were analysed and interpreted to provide insights into the impact of Fairtrade certification on coffee production in Uganda.

## 5. Results and Discussion

### 5.1 Fairtrade certification and income of coffee producers in Uganda

#### 5.1.1 Prices paid to farmers

Table 5.1 presents the ANOVA analysis of price paid to certified and non-certified coffee farmers in Uganda. The table shows that the prices paid to farmers were significantly different, with an F-value of 18.36 and a p-value of 0.000. This means that there is a statistically significant difference in the mean prices paid to farmers between certified and non-certified farmers.

**Table 5.1: Analysis of Variance of prices paid to farmers**

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	1	5786	5786.0	18.36	0.000
Error	38	11978	315.2		
Total	39	17764			

The Model Summary presented in Table 5.2 shows that the model can explain 32.57% of the variance in the data. The adjusted R-squared value of 30.80% indicates that the model is a good fit for the data. The predicted R-squared value of 25.29% suggests that the model is a reasonably good predictor of future observations.

**Table 5.2: Model Summary of prices paid to farmers**

S	R-sq	R-sq(adj)	R-sq(pred)
17.7545	32.57%	30.80%	25.29%

Looking at the means presented in Table 5.3, we can see that certified farmers have a significantly higher mean prices paid to farmers (49.42) than non-certified farmers (25.37). The standard deviation of the means (17.7545) is relatively small, indicating that the means are relatively close together.

**Table 5.3: Means of prices paid to farmers**

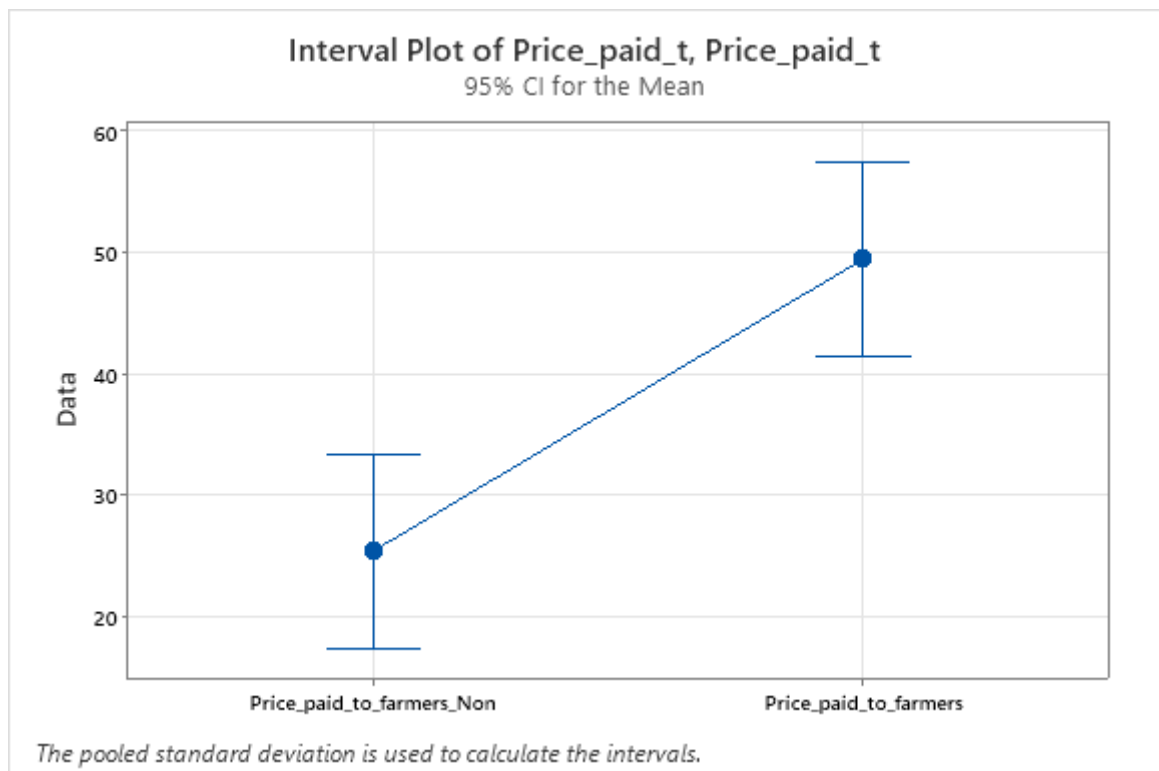
Factor	N	Mean	StDev	95% CI
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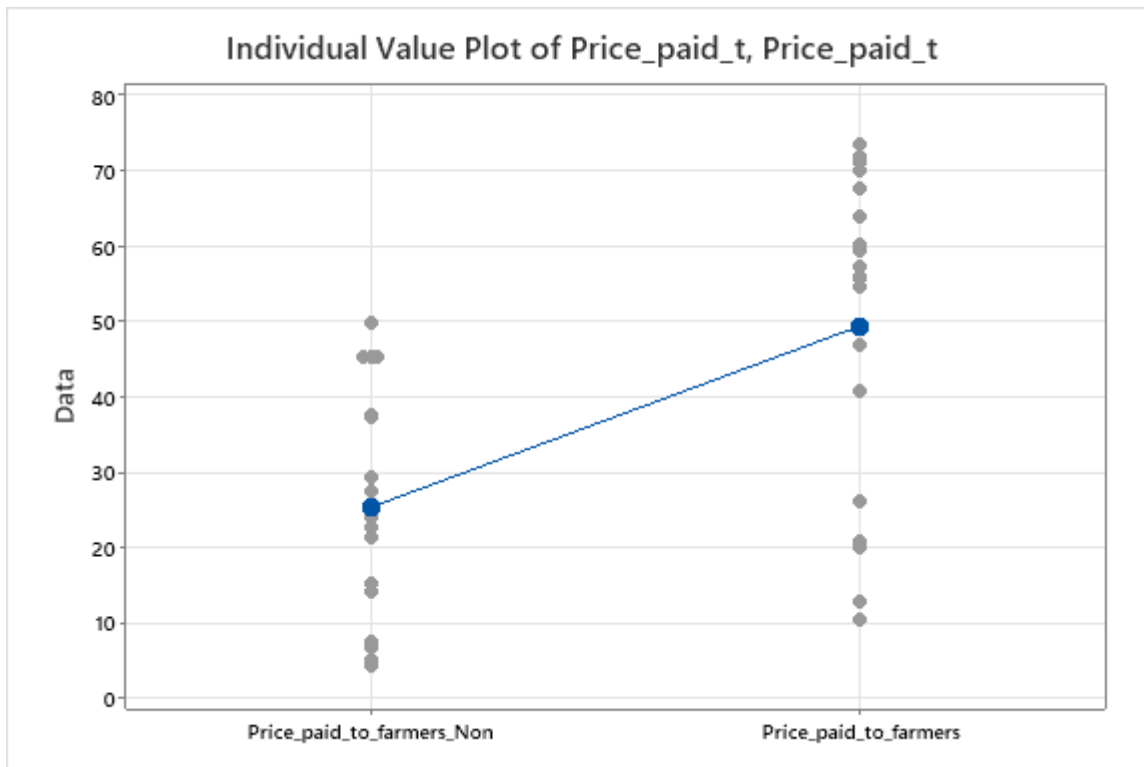
Non-certified	20	25.37 <sup>b</sup>	14.34	(17.33, 33.41)
Certified	20	49.42 <sup>a</sup>	20.61	(41.39, 57.46)

*Means that do not share a letter are significantly different*

*Pooled StDev = 17.7545*



**Figure 5.1: Interval plot of prices paid to farmers**



**Figure 5.3: Individual value plot of prices paid to farmers**

Overall, the data suggests that there is a significant difference in prices paid to farmers between certified and non-certified farmers in Uganda, with certified farmers having a higher mean price than non-certified farmers. This highlights the potential benefits of Fairtrade certification for coffee farmers in Uganda and emphasizes the importance of paying fair prices to farmers.

### 5.1.2 Income of coffee farmers

The result presented in Table 5.4 shows the effect of Fairtrade certification on the income of coffee farmers in Uganda. The results indicate that there is a significant effect of Fairtrade certification on the income of coffee farmers in Uganda ( $F=29.31$ ,  $p<0.001$ ). The factor (certification) explains approximately 43.54% of the total variance in income ( $R\text{-sq}=43.54\%$ ) as shown in Table 5.5.

**Table 5.4: Analysis of variance of income of coffee farmers**

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	1	1.28966E+11	1.28966E+11	29.31	0.000
Error	38	1.67206E+11	4400170573		
Total	39	2.96172E+11			

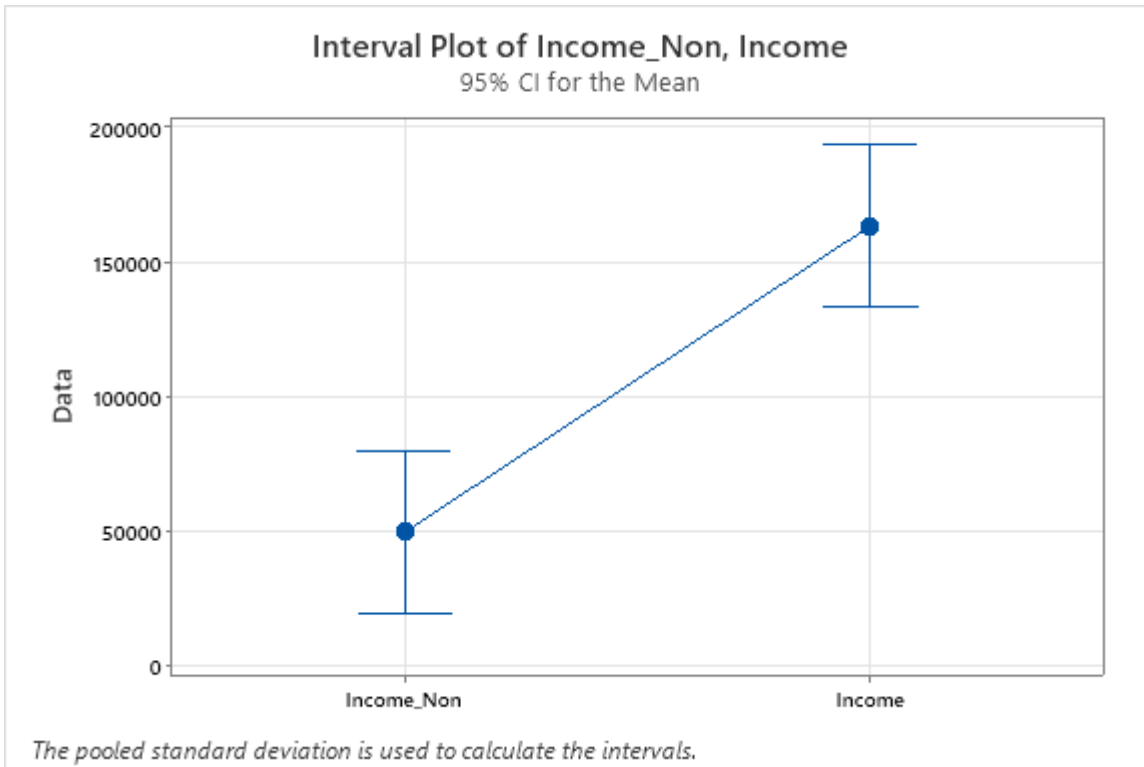
**Table 5.5: Model Summary of income of coffee farmers**

S	R-sq	R-sq(adj)	R-sq(pred)
66333.8	43.54%	42.06%	37.45%

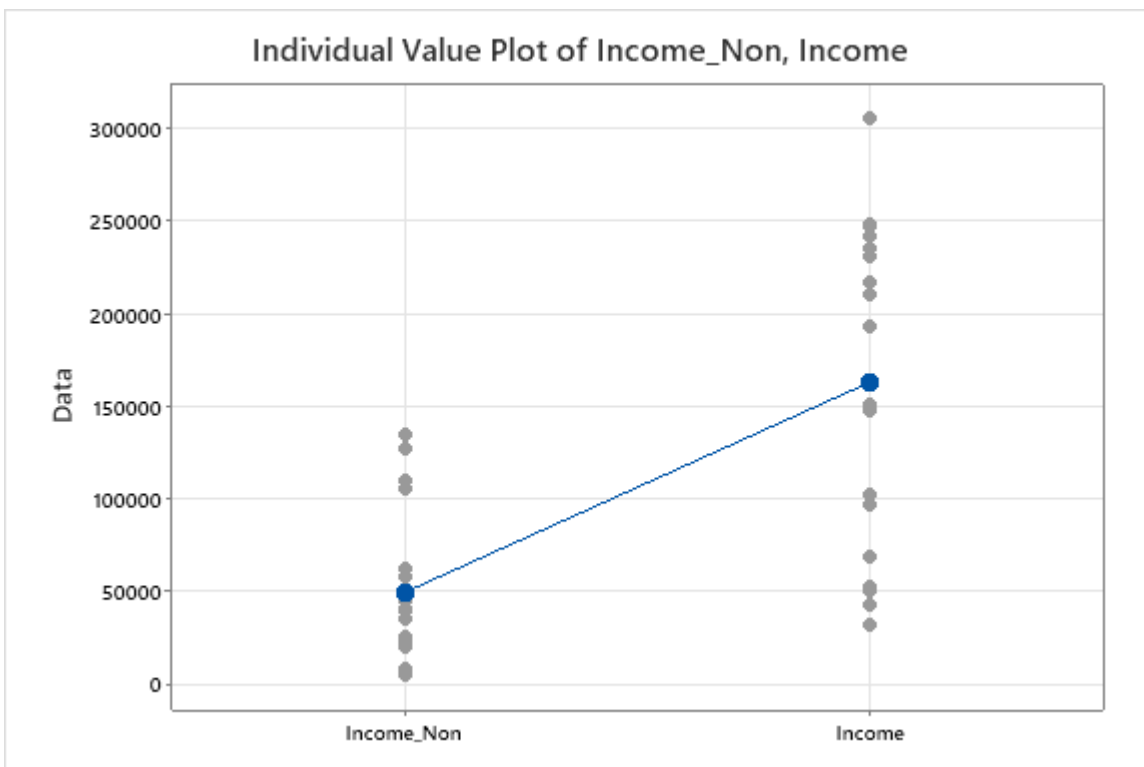
The means of the two groups, certified and non-certified farmers presented in Table 5.6 were found to be significantly different from each other. Certified farmers had a higher mean income of 163,115 USD compared to non-certified farmers with a mean income of 49,552 USD ( $p < 0.05$ ). Additionally, the Fisher LSD method was used to group the means, and it indicated that the income of certified farmers was significantly different from that of non-certified farmers.

Factor	N	Mean	StDev	95% CI
Non-certified	20	49552 <sup>b</sup>	39922	(19525, 79580)
Certified	20	163115 <sup>a</sup>	84892	(133088, 193143)

*Means that do not share a letter are significantly different*



**Figure 5.3: Interval plot of income of coffee farmers**



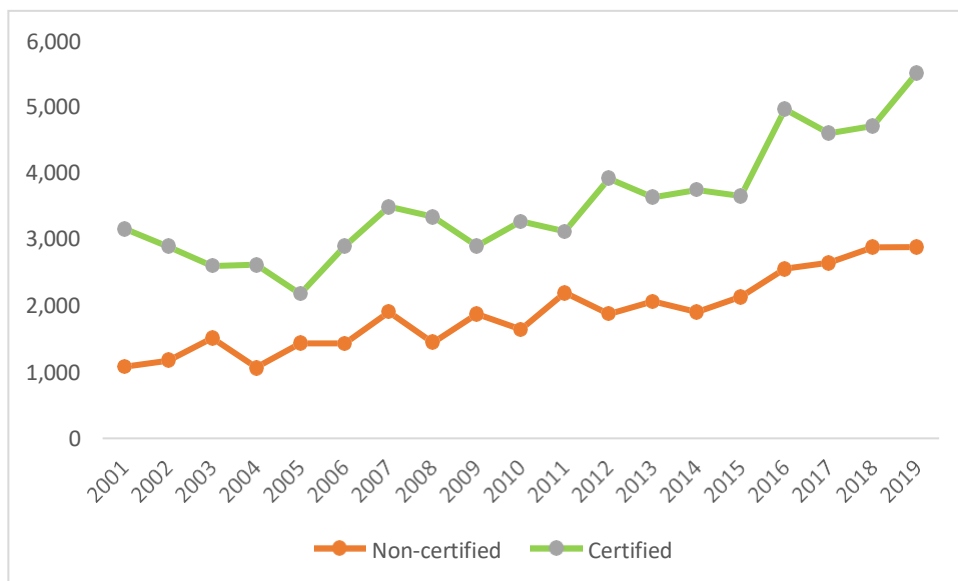
**Figure 5.4: Individual value plot of income of coffee farmers**

Therefore, based on the ANOVA and Fisher LSD results, we can conclude that Fairtrade certification has a significant positive effect on the income of coffee farmers in Uganda.

## 5.2 Fairtrade certification and coffee production in Uganda

### 5.2.1 Coffee production trend in Uganda

Figure 5.5 shows the coffee production trend in Uganda between year 2000 and 2019. Looking at the data, we can observe that both non-certified and certified coffee production in Uganda have been increasing over the years. However, there is a clear difference between the two, with certified coffee production being consistently higher than non-certified coffee production. In the early years, both types of coffee production had relatively low values, with certified coffee production being slightly higher. From 2007 onwards, there was a noticeable increase in both types of production, with the certified coffee production growing at a much faster rate than the non-certified coffee production.



**Figure 5.5: Coffee production trend in Uganda (In thousand 60kg bags)**

### 5.2.2 ANOVA of coffee production in Uganda

The analysis of variance (ANOVA) results shows that there is a significant difference between the total coffee production of certified and non-certified coffee farmers in Uganda (Table 5.6). The p-value is less than 0.05, which means that we can reject the null hypothesis that there is no difference between the two groups.

**Table 5.6: Analysis of Variance of coffee production in Uganda**

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	1	27740882	27740882	53.19	0.000
Error	38	19819804	521574		
Total	39	47560686			

The model summary presented in Table 5.7 indicates that the independent variable, which is the type of coffee farming (certified or non-certified), explains 58.33% of the variation in total coffee production. The adjusted R-squared value of 57.23% suggests that the model has a good fit.

**Table 5.7: Model Summary of coffee production in Uganda**

S	R-sq	R-sq(adj)	R-sq(pred)
722.201	58.33%	57.23%	53.83%

The means table shows that the mean total coffee production for certified farmers is significantly higher than that of non-certified farmers (Table 5.8). The confidence interval for certified farmers does not overlap with that of non-certified farmers, further indicating a significant difference between the two groups.

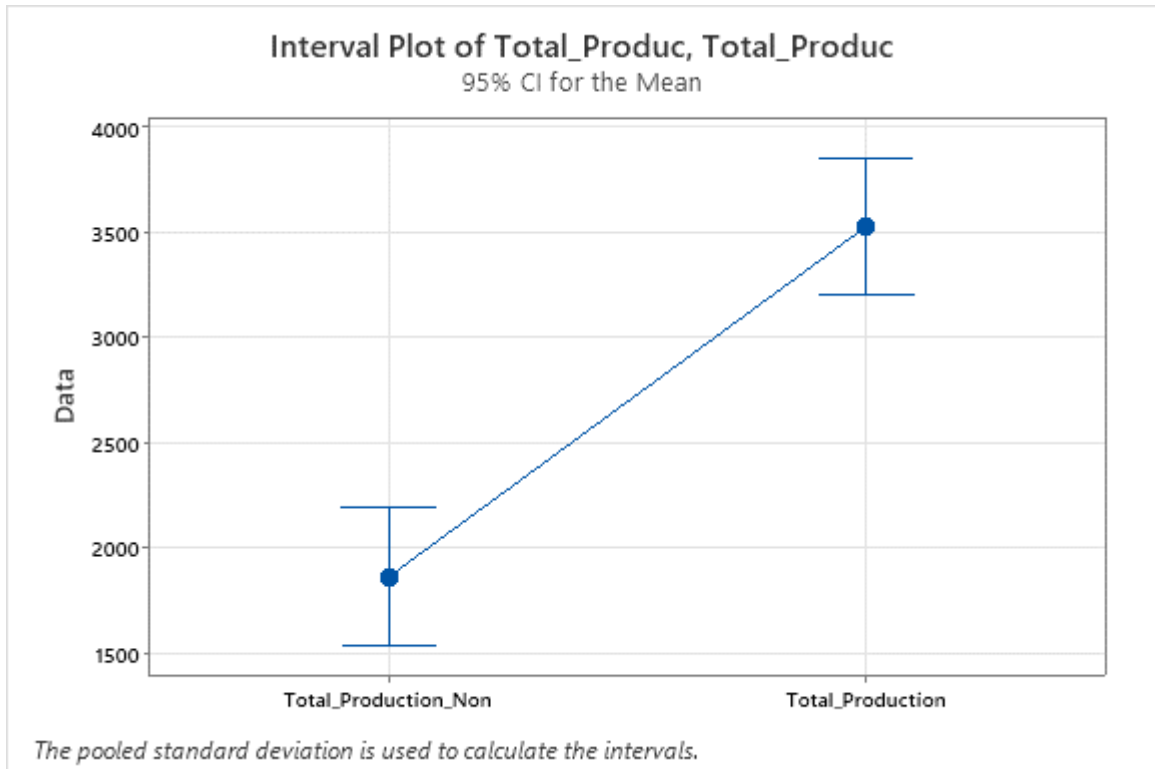
**Table 5.8: Means of coffee production in Uganda (In thousand 60kg bags)**

Factor	N	Mean	StDev	95% CI
Non-certified	20	1862 <sup>b</sup>	558	(1535, 2188)
Certified	20	3527 <sup>a</sup>	855	(3200, 3854)

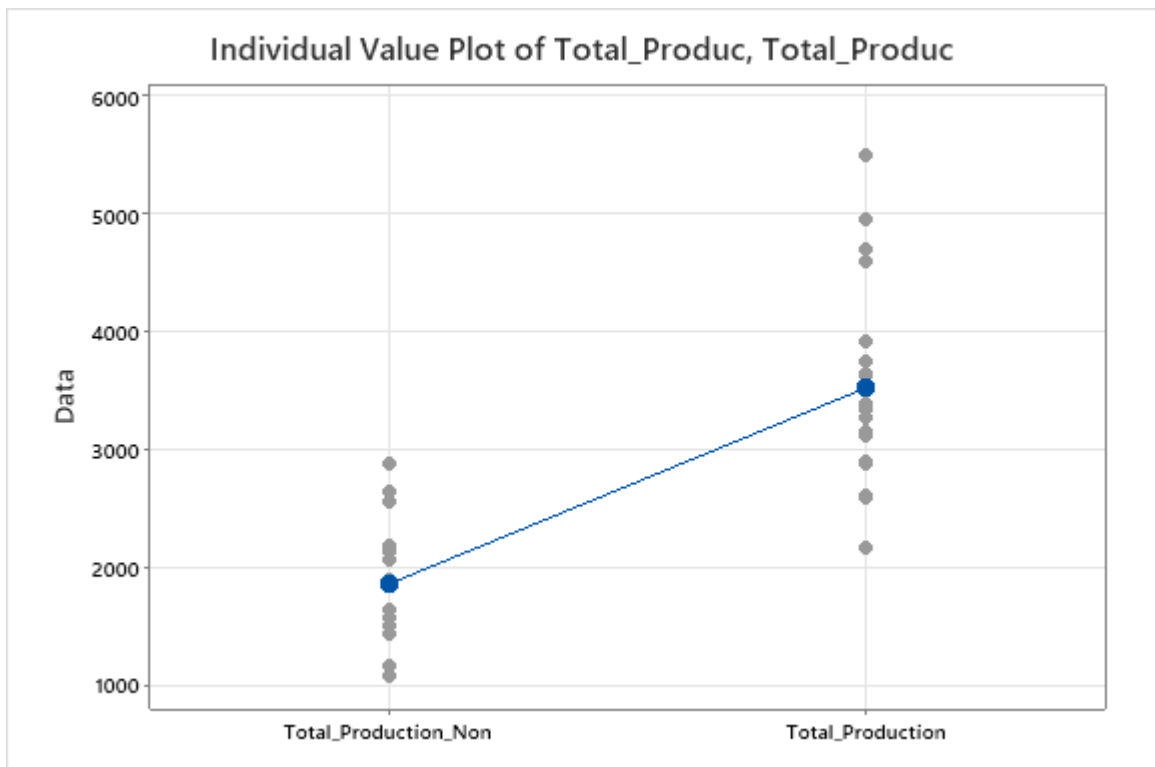
*Means that do not share a letter are significantly different.*

*Pooled StDev = 722.201*

The finding that certified farmers have higher total coffee production than non-certified farmers is consistent with previous research that has shown that certification can have positive effects on productivity and efficiency. Certification programs often involve training and support for farmers, as well as access to markets and information, which can improve farming practices and increase productivity. Overall, the results suggest that certification can be a valuable tool for increasing coffee production for farmers in Uganda.



**Figure 5.6: Interval plot of coffee production in Uganda**



**Figure 5.7: Individual value plot of coffee production in Uganda**

### 5.2.3 Regression of fairtrade certification and coffee production in Uganda

The regression analysis shows that there is a significant positive association between the total coffee production and the price paid to farmers (Table 5.9). The coefficient of 18.88 indicates that the relationship between the two variables is positive, meaning that as the price paid to farmers increases, the total coffee production also increases.

**Table 5.9: Regression of fairtrade certification and coffee production in Uganda**

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	2594	465	5.58	0.000	
Price_paid_to_farmers	18.88	8.71	2.17	0.044	1.00

This relationship is significant at the 0.05 level of significance, as the p-value for the regression coefficient is 0.044, which is less than the threshold value of 0.05 (Table 5.10). The analysis of variance shows that the regression model is significant, with an F-value of 4.70 and a p-value of 0.044, indicating that the regression model is a better fit than the null model.

**Table 5.10: Analysis of Variance**

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	1	2877502	2877502	4.70	0.044
Price_paid_to_farmers	1	2877502	2877502	4.70	0.044
Error	18	11023947	612441		
Total	19	13901449			

The regression equation shows that for every unit increase in the price paid to farmers, the total coffee production is expected to increase by 18.88 units, holding all other variables constant. The coefficient of determination (R-squared) value of 0.207 indicates that 20.7% of the variation in the total coffee production can be explained by the variation in the price paid to farmers.

**Table 5.11: Regression model summary**

S	R-sq	R-sq(adj)	R-sq(pred)
782.586	20.70%	16.29%	7.87%

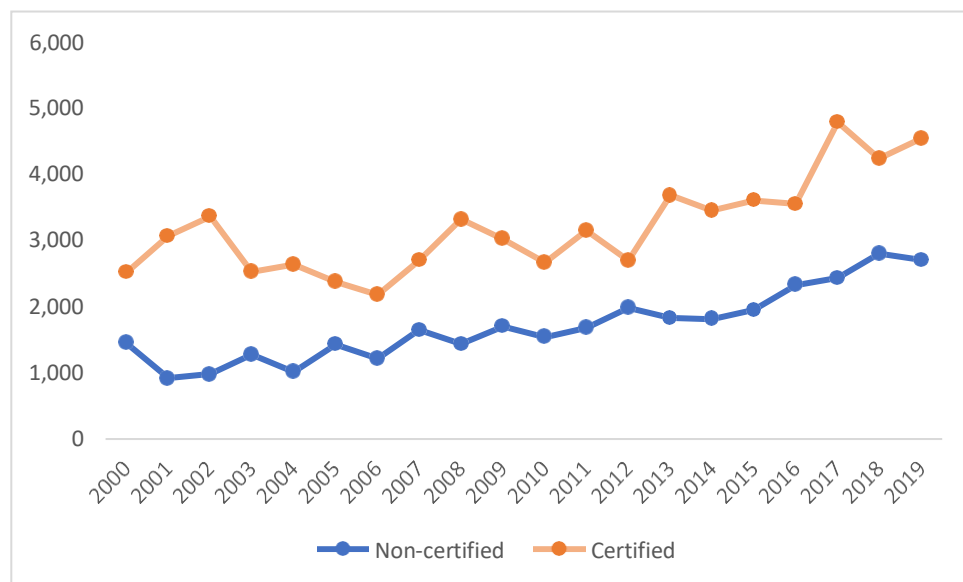


This suggests that while the price paid to farmers is a significant predictor of total coffee production, there are other variables that may also play a role in determining coffee production. The standard error of the regression coefficient for price paid to farmers is 8.71, which means that the estimated effect of price paid to farmers on total coffee production has a margin of error of plus or minus 8.71 units.

### 5.3 Fairtrade certification and coffee export in Uganda

#### 5.3.1 Coffee export trends in Uganda

Figure 5.8 shows the coffee exports for non-certified and certified coffee farmers in Uganda from 2000 to 2019. From the data, we can see that the coffee exports for both non-certified and certified farmers have increased over the years. However, it seems that the exports for certified coffee farmers have increased at a faster rate compared to non-certified coffee farmers. In 2000, the certified farmers exported 2,513 units of coffee while the non-certified farmers exported 1,445 units. By 2019, the certified farmers exported 4,526 units of coffee, while the non-certified farmers exported 2,697 units. This suggests that being a certified coffee farmer in Uganda is associated with higher coffee exports compared to being a non-certified farmer.



**Figure 5.8: Coffee export trends in Uganda (In thousand 60kg bags)**

### 5.3.2 ANOVA of coffee exports in Uganda

The analysis of variance (ANOVA) shows that there is a significant difference between the mean coffee exports of certified and non-certified farmers in Uganda, with a p-value of 0.000, indicating that this result is statistically significant (Table 5.12).

**Table 5.12: Analysis of Variance of coffee exports in Uganda**

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	1	22289205	22289205	55.42	0.000
Error	38	15284083	402213		
Total	39	37573288			

The model summary (Table 5.13) shows that the factor (certification status) accounts for 58.25% of the variance in coffee exports, indicating that this variable has a strong effect on coffee exports.

**Table 5.13: Model Summary of coffee exports in Uganda**

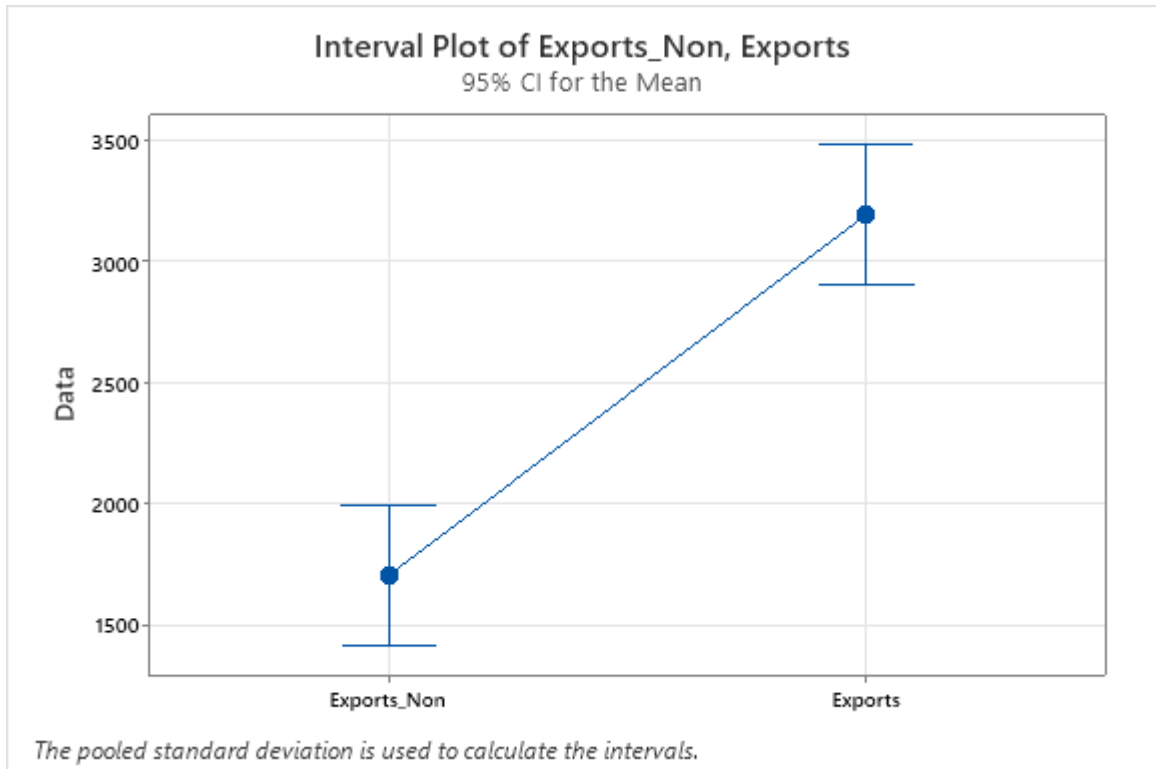
S	R-sq	R-sq(adj)	R-sq(pred)
634.202	59.32%	58.25%	54.93%

The means table shows that the average coffee exports for certified farmers is 3195, while the average for non-certified farmers is 1702. The Fisher LSD method was used to compare the means, and it shows that the means that do not share a letter are significantly different. In this case, the means for certified and non-certified farmers do not share a letter, indicating that the difference in exports between the two groups is statistically significant.

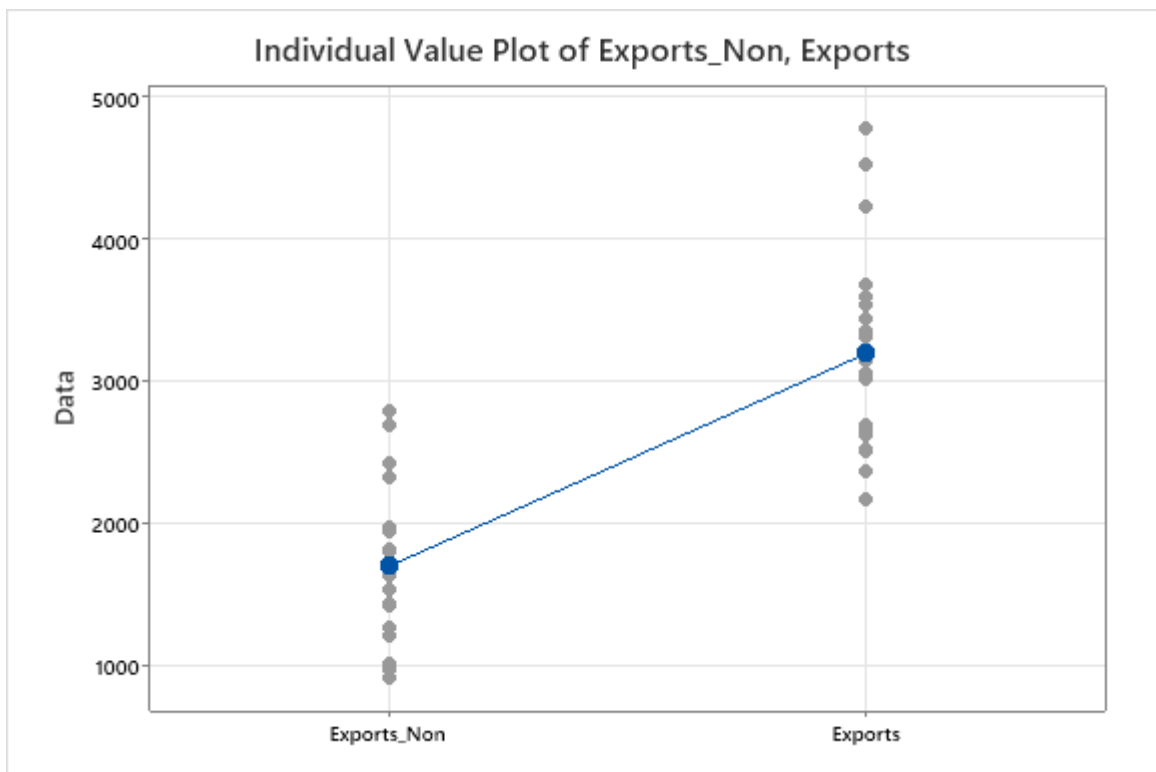
**Table 5.14: Means of coffee exports in Uganda (In thousand 60kg bags)**

Factor	N	Mean	StDev	95% CI
Non-certified	20	1702 <sup>b</sup>	539	(1415, 1989)
Certified	20	3195 <sup>a</sup>	717	(2908, 3482)

*Means that do not share a letter are significantly different*



**Figure 5.9: Interval plot of coffee export in Uganda**



**Figure 5.10: Individual value plot of coffee export in Uganda**

## 6. Conclusion

This study investigated the Fairtrade certification of coffee in Uganda, with specific objectives of identifying the effects of Fairtrade certification on the income of coffee producers, coffee production, and coffee exports in Uganda. The research utilized two different methods, namely comparative and descriptive, to achieve its objectives. Secondary data were collected from the International Coffee Organization (ICO) between 2000 and 2019. ANOVA and regression analyses were conducted to provide valuable insights into the effects of Fairtrade certification on the industry.

The results of the study indicate that Fairtrade certification has a significant positive effect on the income of coffee farmers in Uganda. The analysis of variance (ANOVA) showed a significant difference in prices paid to farmers between certified and non-certified farmers in Uganda, with certified farmers receiving a higher mean price. This highlights the potential benefits of Fairtrade certification for coffee farmers in Uganda and emphasizes the importance of paying fair prices to farmers. Moreover, the ANOVA results also showed a significant difference in total coffee production between certified and non-certified coffee farmers in Uganda. This indicates that Fairtrade certification has a positive effect on coffee production in the country. Additionally, the regression analysis showed a significant positive association between the total coffee production and the price paid to farmers. This suggests that paying fair prices to farmers can lead to increased coffee production in Uganda.

Furthermore, the ANOVA analysis revealed a significant difference in the mean coffee exports of certified and non-certified farmers in Uganda. This suggests that Fairtrade certification has a positive impact on coffee exports in the country. It is worth noting that Uganda is one of the largest coffee producers in Africa, and the positive effects of Fairtrade certification on coffee production and exports in the country can have a significant impact on the livelihoods of coffee farmers and the economy as a whole.

In conclusion, this study provides evidence that Fairtrade certification has a significant positive effect on the income of coffee farmers, coffee production, and coffee exports in Uganda. The study emphasizes the importance of paying fair prices to farmers and highlights the potential benefits of Fairtrade certification for the coffee industry in Uganda. The findings of this study can provide valuable insights for policymakers, coffee farmers, and other stakeholders in the coffee industry in Uganda and other developing

countries. Overall, Fairtrade certification can play a crucial role in promoting sustainable and equitable coffee production and trade in Uganda and other coffee-producing countries.

## **6.1 Recommendations**

Based on the findings of this study, the following recommendations were suggested:

- 1 More coffee farmers should be encouraged to participate in Fairtrade certification programs: The study shows that Fairtrade certification has a significant positive effect on the income, production, and exports of coffee in Uganda. Therefore, there is a need to encourage more coffee farmers to participate in Fairtrade certification programs to benefit from fair prices, access to markets, and other benefits.
- 2 Increase awareness and understanding of Fairtrade certification programs: Many coffee farmers in Uganda may not be aware of the benefits of Fairtrade certification programs. Therefore, there is a need to increase awareness and understanding of these programs to enable more farmers to participate.
- 3 Strengthen the capacity of smallholder coffee farmers: Smallholder coffee farmers may lack the necessary skills and resources to participate effectively in Fairtrade certification programs. Therefore, there is a need to strengthen their capacity through training, access to credit, and other support services.
- 4 Promote collaboration between farmers, cooperatives, and other stakeholders: Collaboration between farmers, cooperatives, and other stakeholders in the coffee industry can help to enhance the effectiveness of Fairtrade certification programs. Therefore, there is a need to promote collaboration and partnerships among these groups to promote sustainable and equitable coffee production and trade.
- 5 Support research and data collection on the impact of Fairtrade certification: The study utilized secondary data to analyze the impact of Fairtrade certification on the coffee industry in Uganda. However, more research and data collection are needed to provide more accurate and comprehensive information on the impact of Fairtrade certification programs on the coffee industry. Therefore, there is a need to support research and data collection efforts to provide more insights into the benefits of Fairtrade certification for coffee farmers and the industry as a whole.

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## 9. Appendix

### 9.1 Appendix A - Transformed data

Year	Total_Production_Non	Exports_Non	Price_paid_to_farmers_Non	Income_Non	Total_Production	Exports	Price_paid_to_farmers	Income
2000	1,572	1,445	15.29	22,097	3,401	2,513	19.92	50,073
2001	1,079	920	5.21	4,793	3,158	3,060	10.57	32,338
2002	1,170	978	4.30	4,206	2,890	3,358	12.78	42,926
2003	1,509	1,270	6.72	8,543	2,599	2,522	20.81	52,482
2004	1,068	1,015	7.55	7,667	2,613	2,627	26.26	68,992
2005	1,432	1,427	14.27	20,369	2,175	2,369	40.82	96,697
2006	1,428	1,213	21.45	26,006	2,894	2,173	47.02	102,168
2007	1,906	1,640	21.38	35,060	3,490	2,693	55.88	150,486
2008	1,445	1,433	27.57	39,501	3,335	3,311	71.09	235,369
2009	1,871	1,696	29.45	49,933	2,894	3,014	49.03	147,797
2010	1,638	1,536	37.68	57,858	3,267	2,657	55.61	147,733
2011	2,193	1,676	37.24	62,398	3,115	3,142	73.54	231,050
2012	1,873	1,980	24.04	47,601	3,914	2,685	71.80	192,813
2013	2,060	1,823	22.63	41,265	3,633	3,672	67.71	248,606
2014	1,898	1,810	25.10	45,417	3,744	3,442	70.18	241,583
2015	2,130	1,943	21.54	41,845	3,650	3,596	60.22	216,513
2016	2,555	2,321	45.36	105,259	4,962	3,543	59.41	210,504
2017	2,642	2,424	45.36	109,964	4,597	4,774	63.95	305,323
2018	2,879	2,794	45.36	126,738	4,704	4,223	57.23	241,696
2019	2,882	2,697	49.87	134,528	5,509	4,526	54.61	247,164

Source: ICO 2023

## 9.2 Appendix – B Analysis Output

### Method

Null hypothesis	All means are equal
Alternative hypothesis	Not all means are equal
Significance level	$\alpha = 0.05$

*Equal variances were assumed for the analysis.*

### Factor Information

Factor	Levels	Values
Factor	2	Total_Production_Non, Total_Production

### Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	1	27740882	27740882	53.19	0.000
Error	38	19819804	521574		
Total	39	47560686			

### Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
722.201	58.33%	57.23%	53.83%

### Means

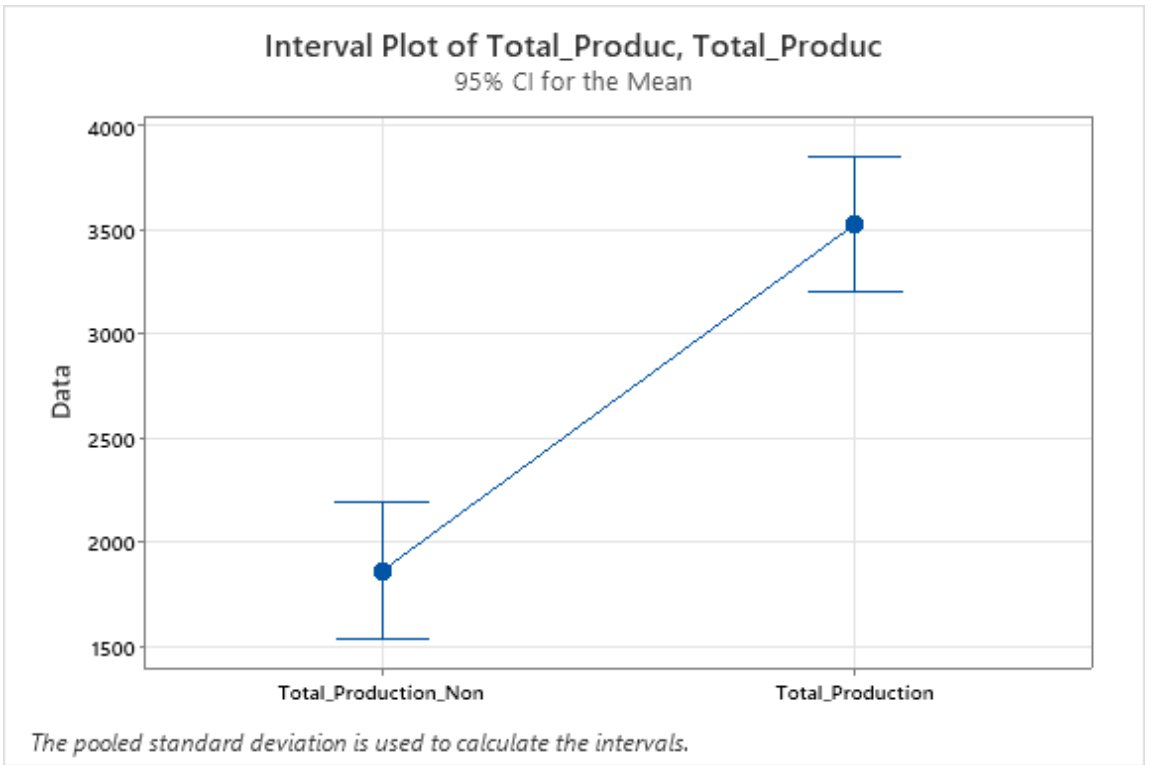
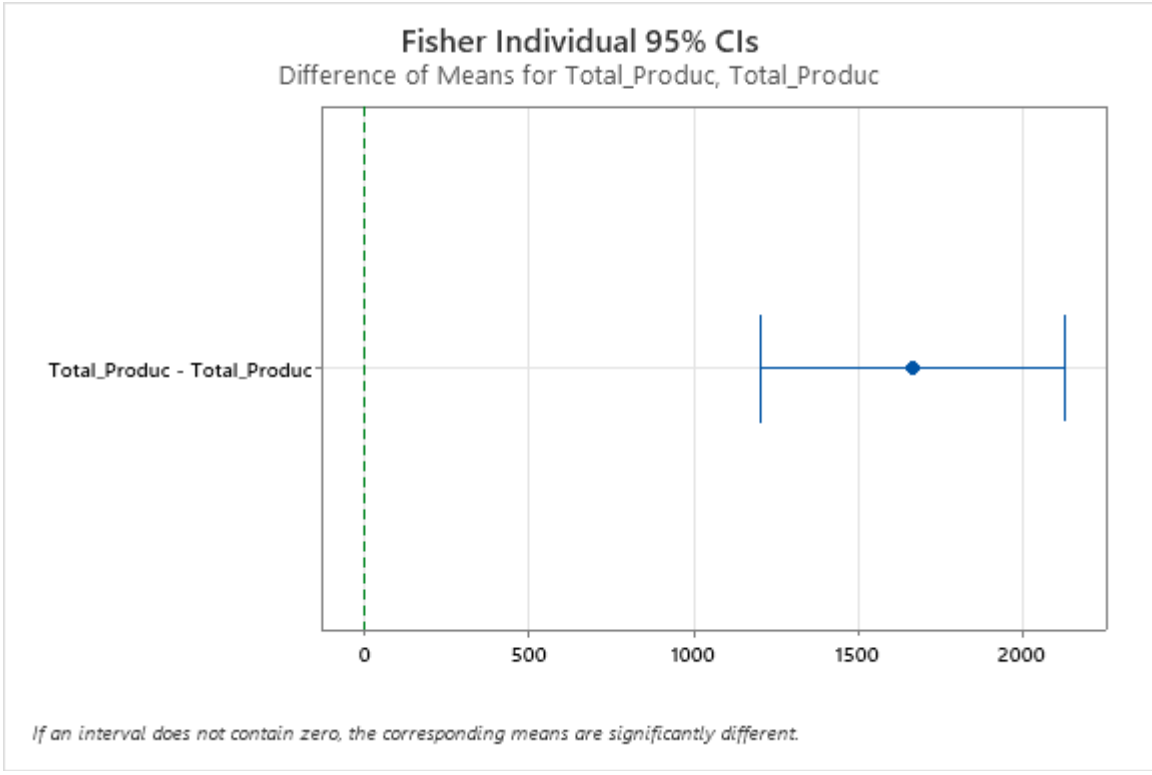
Factor	N	Mean	StDev	95% CI
Total_Production_Non	20	1862	558	(1535, 2188)
Total_Production	20	3527	855	(3200, 3854)

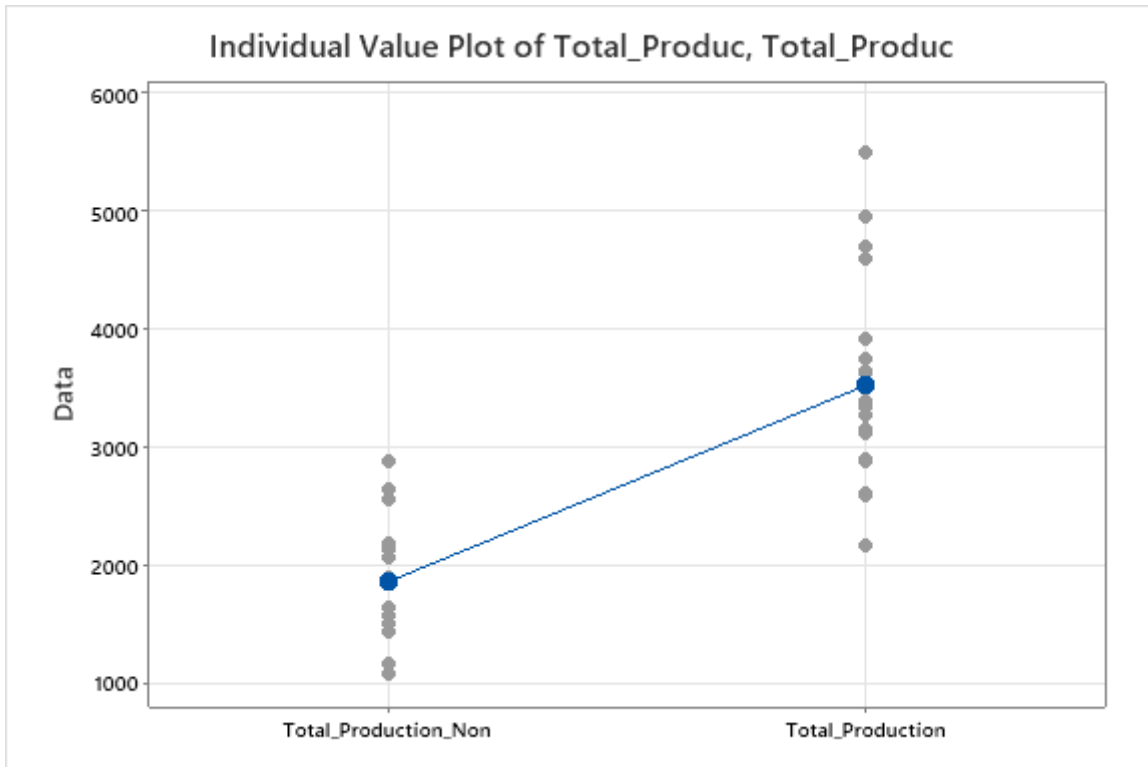
*Pooled StDev = 722.201*

### Grouping Information Using the Fisher LSD Method and 95% Confidence

Factor	N	Mean	Grouping
Total_Production	20	3527	A
Total_Production_Non	20	1862	B

*Means that do not share a letter are significantly different.*





## Method

Null hypothesis      All means are equal  
 Alternative hypothesis      Not all means are equal  
 Significance level       $\alpha = 0.05$

*Equal variances were assumed for the analysis.*

## Factor Information

Factor	Level	Values
Factor	2	Exports_Non, Exports

## Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	1	22289205	22289205	55.42	0.000
Error	38	15284083	402213		
Total	39	37573288			

## Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
634.202	59.32%	58.25%	54.93%

## Means

Factor	N	Mean	StDev	95% CI
--------	---	------	-------	--------



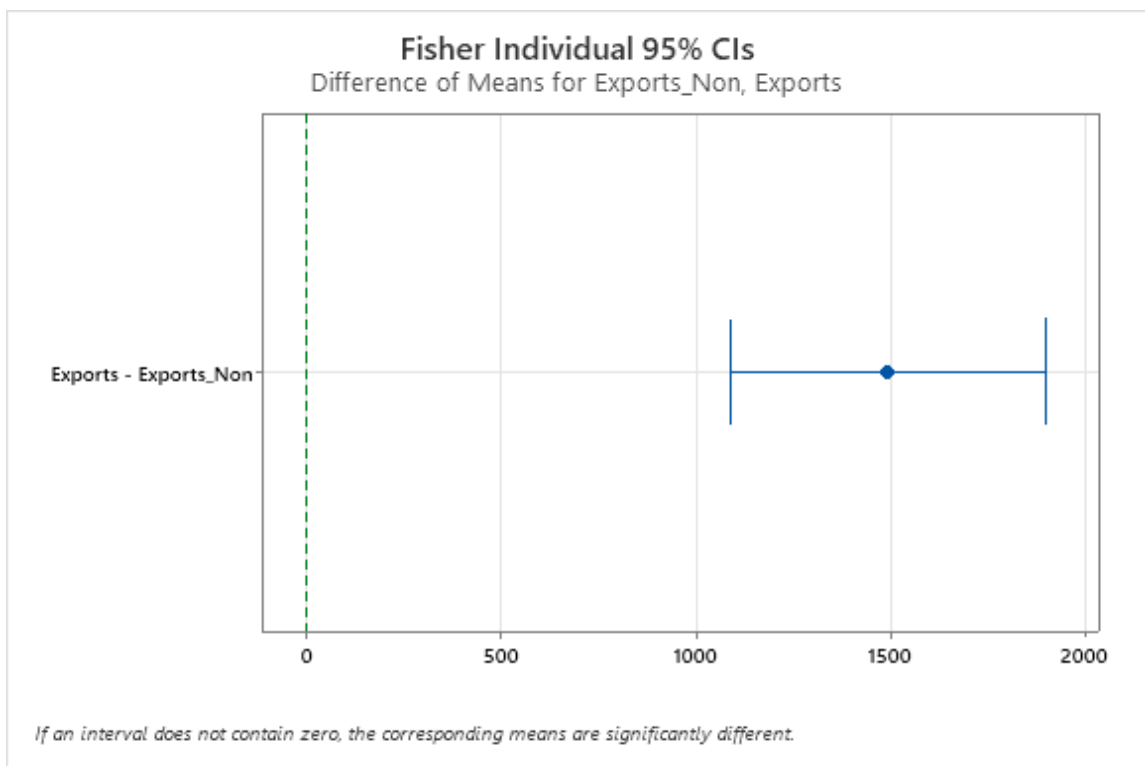
Exports_Non	20	1702	539	(1415, 1989)
Exports	20	3195	717	(2908, 3482)

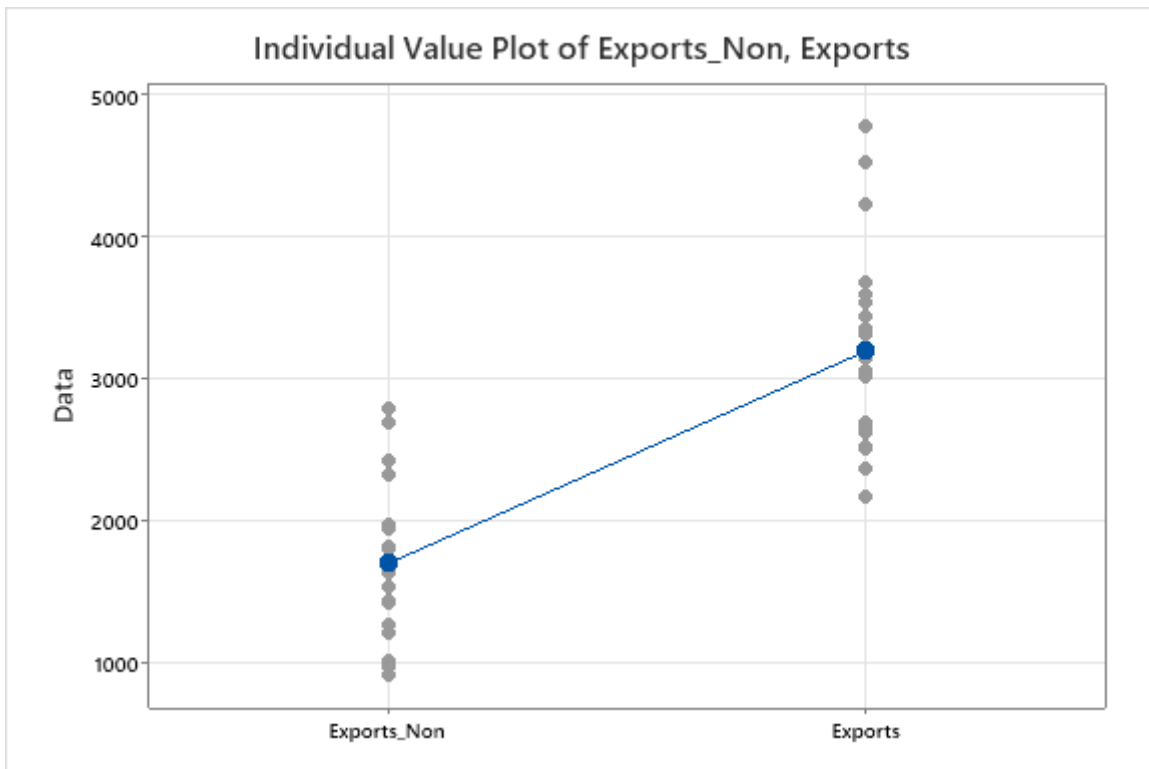
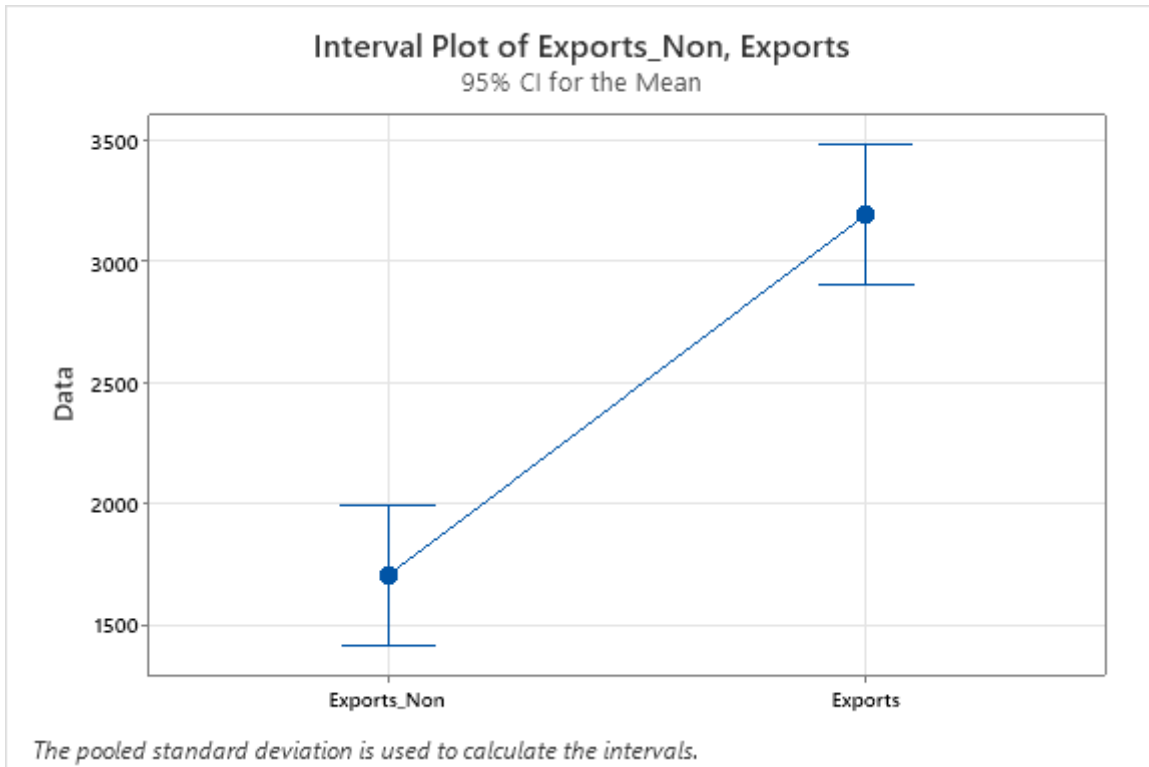
Pooled StDev = 634.202

### Grouping Information Using the Fisher LSD Method and 95% Confidence

<u>Factor</u>	<u>N</u>	<u>Mean</u>	<u>Grouping</u>
Exports	20	3195	A
Exports_Non	20	1702	B

Means that do not share a letter are significantly different.





## Method

Null hypothesis	All means are equal
Alternative hypothesis	Not all means are equal
Significance level	$\alpha = 0.05$

Equal variances were assumed for the analysis.

## Factor Information

Factor	Levels	Values
Factor	2	Price_paid_to_farmers_Non, Price_paid_to_farmers

## Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	1	5786	5786.0	18.36	0.000
Error	38	11978	315.2		
Total	39	17764			

## Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
17.7545	32.57%	30.80%	25.29%

## Means

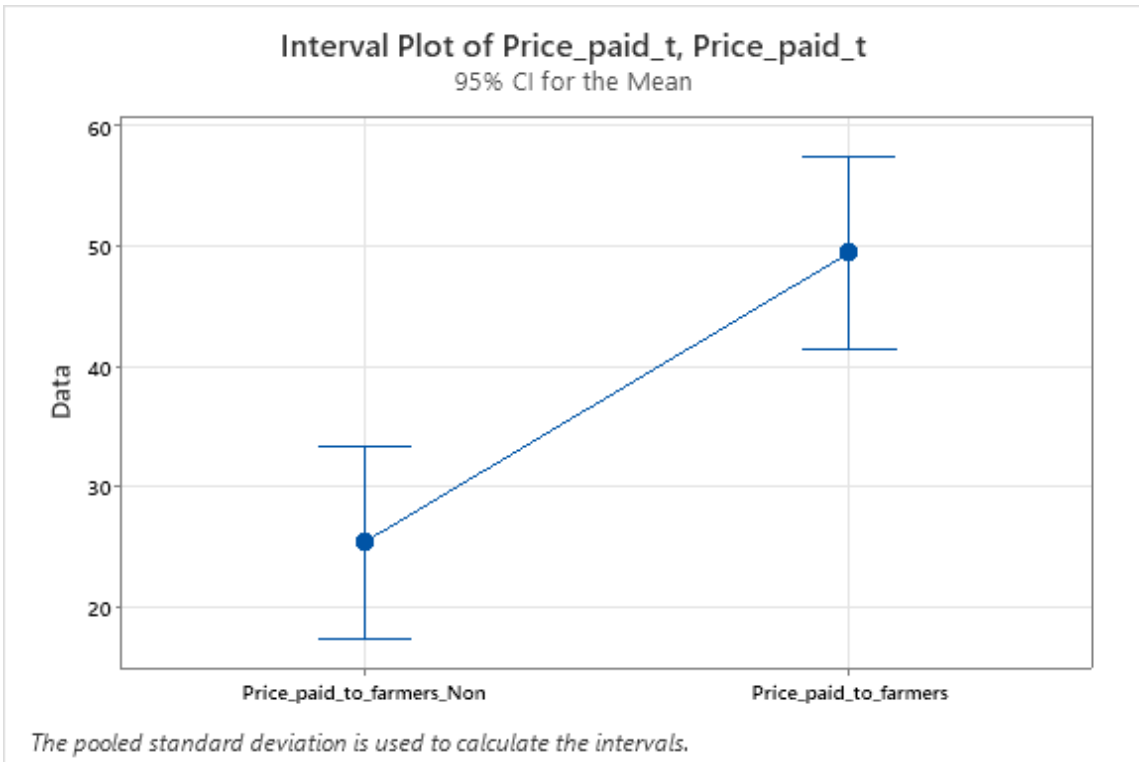
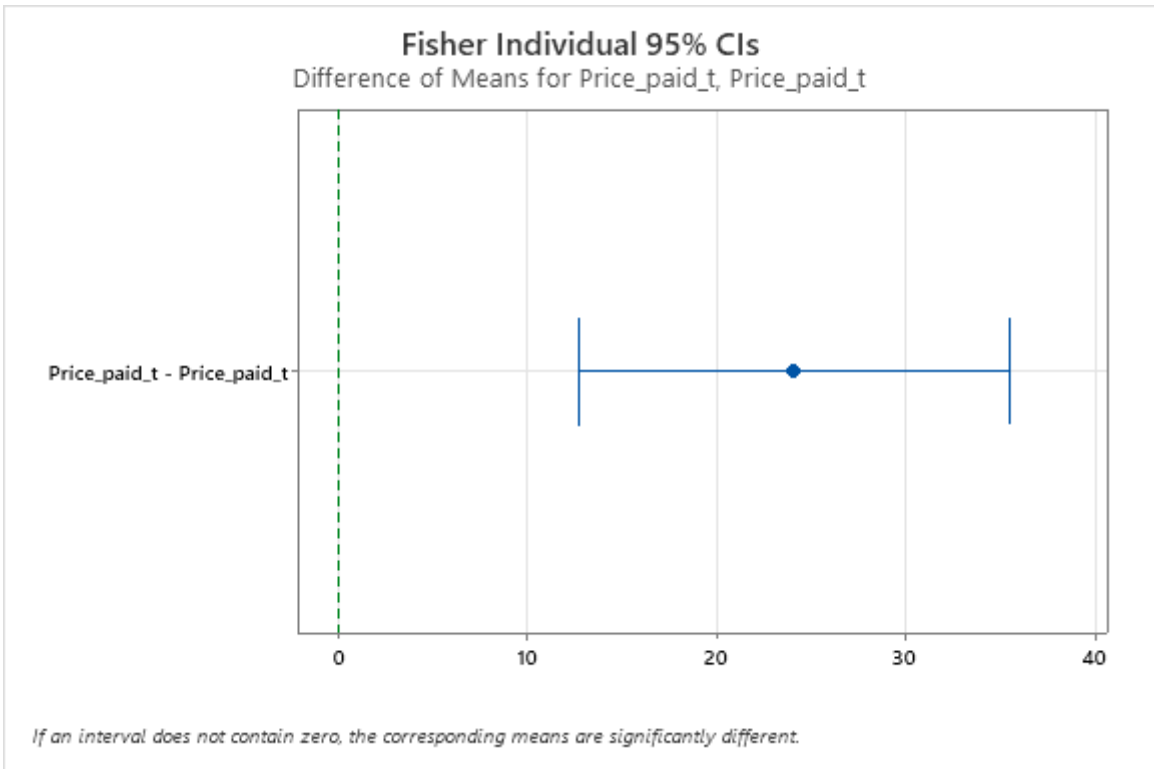
Factor	N	Mean	StDev	95% CI
Price_paid_to_farmers_Non	20	25.37	14.34	(17.33, 33.41)
Price_paid_to_farmers	20	49.42	20.61	(41.39, 57.46)

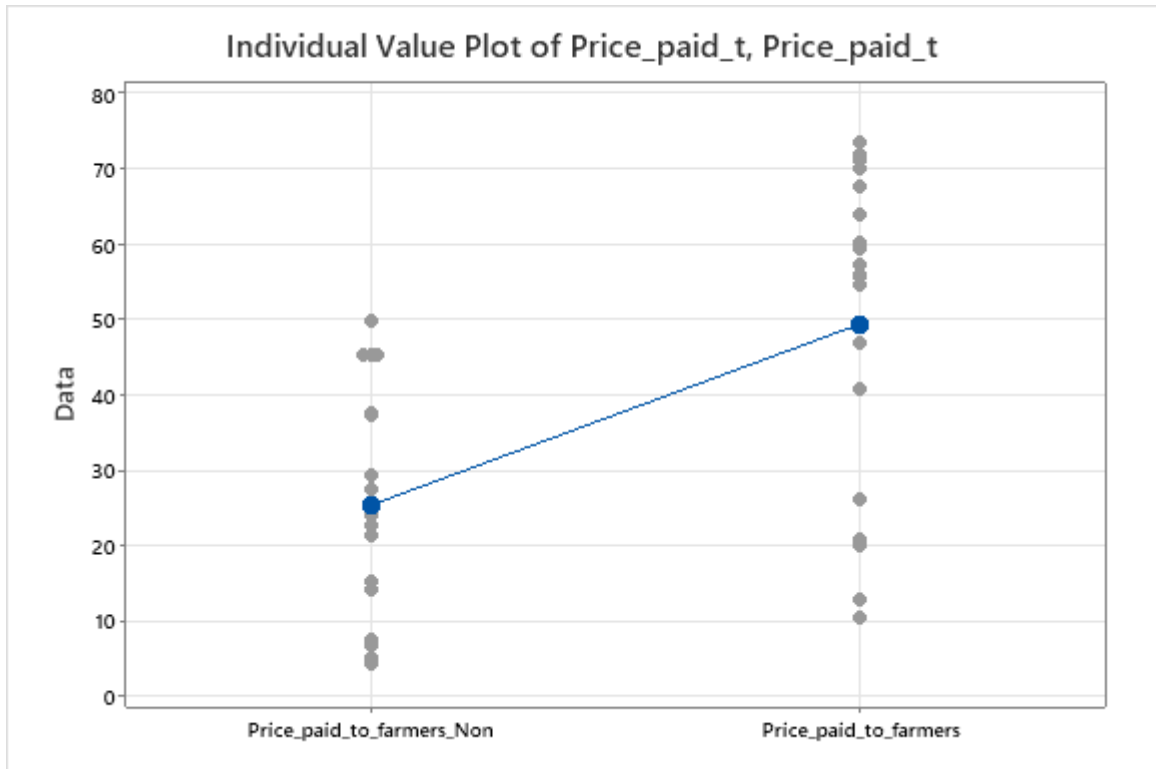
Pooled StDev = 17.7545

## Grouping Information Using the Fisher LSD Method and 95% Confidence

Factor	N	Mean	Grouping
Price_paid_to_farmers	20	49.42	A
Price_paid_to_farmers_Non	20	25.37	B

Means that do not share a letter are significantly different.





## Method

Null hypothesis      All means are equal  
 Alternative hypothesis      Not all means are equal  
 Significance level       $\alpha = 0.05$

*Equal variances were assumed for the analysis.*

## Factor Information

Factor	Levels	Values
Factor	2	Income_Non, Income

## Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	1	1.28966E+11	1.28966E+11	29.31	0.000
Error	38	1.67206E+11	4400170573		
Total	39	2.96172E+11			

## Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
66333.8	43.54%	42.06%	37.45%

## Means

Factor	N	Mean	StDev	95% CI
Income_Non	20	49552	39922	(19525, 79580)

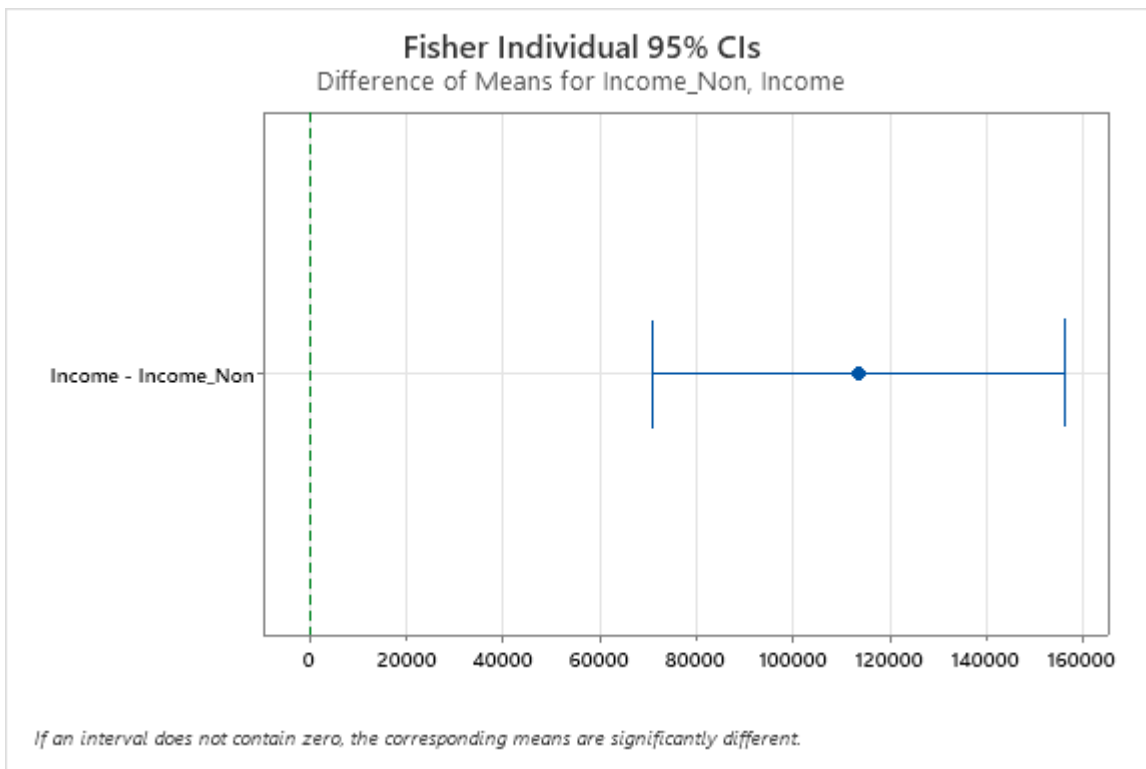
Income 20 163115 84892 (133088, 193143)

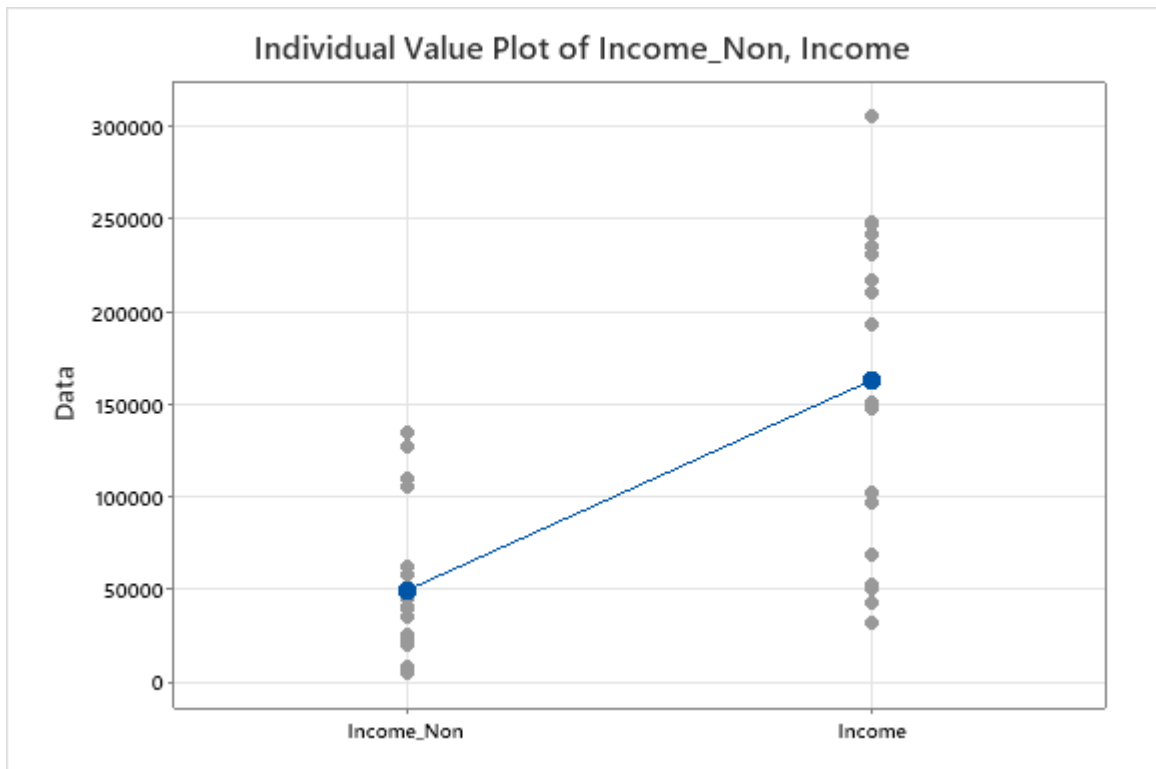
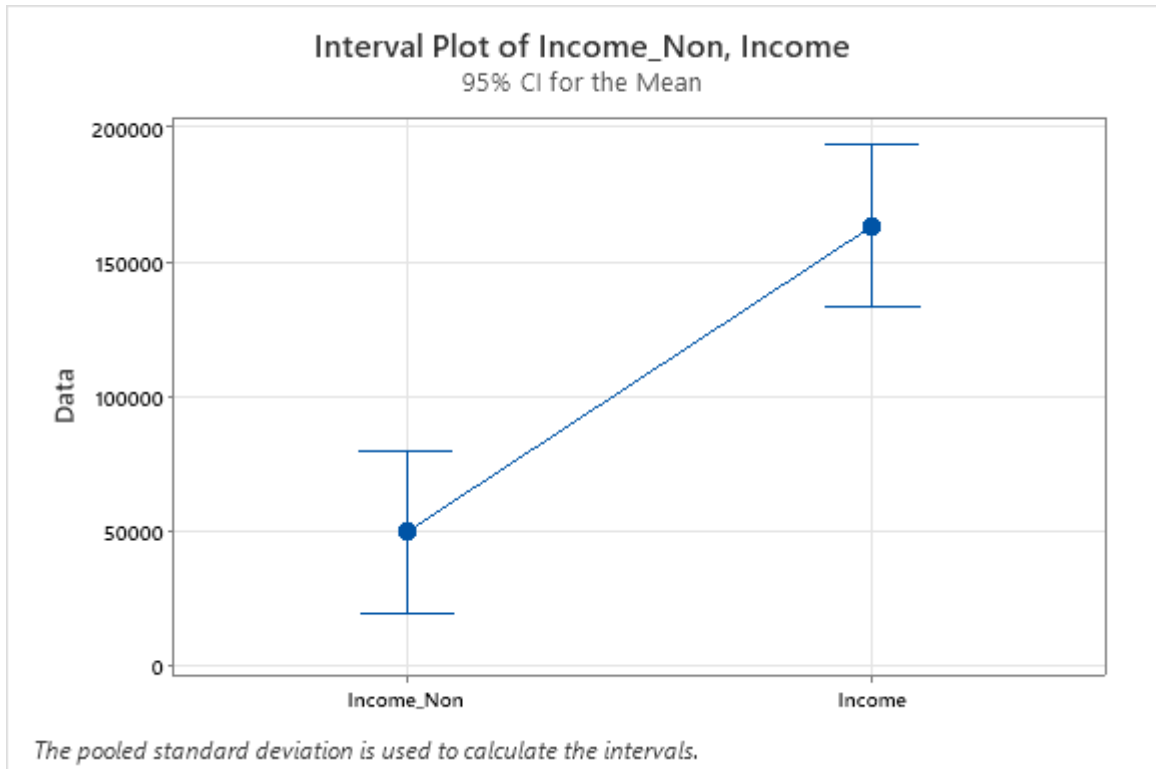
Pooled StDev = 66333.8

### Grouping Information Using the Fisher LSD Method and 95% Confidence

<u>Factor</u>	<u>N</u>	<u>Mean</u>	<u>Grouping</u>
Income	20	163115	A
Income_Non	20	49552	B

Means that do not share a letter are significantly different.





## Regression Equation

$$\text{Exports} = 2557 + 12.91 \text{ Price\_paid\_to\_farmers}$$

## Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	2557	406	6.30	0.000	
Price_paid_to_farmers	12.91	7.61	1.70	0.107	1.00

## Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
683.519	13.80%	9.01%	0.00%

## Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	1	1345995	1345995	2.88	0.107
Price_paid_to_farmers	1	1345995	1345995	2.88	0.107
Error	18	8409564	467198		
Total	19	9755559			

## Fits and Diagnostics for Unusual Observations

Obs	Exports	Fit	Resid	Std Resid
18	4774	3383	1391	2.12 R

R Large residual

## Regression Equation

$$\text{Total\_Production} = 2594 + 18.88 \text{ Price\_paid\_to\_farmers}$$

## Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	2594	465	5.58	0.000	
Price_paid_to_farmers	18.88	8.71	2.17	0.044	1.00

## Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
782.586	20.70%	16.29%	7.87%

## Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	1	2877502	2877502	4.70	0.044
Price_paid_to_farmers	1	2877502	2877502	4.70	0.044
Error	18	11023947	612441		
Total	19	13901449			

## Fits and Diagnostics for Unusual Observations



<b>Obs</b>	<b>Total_Production</b>	<b>Fit</b>	<b>Resid</b>	<b>Std Resid</b>
20	5509	3625	1884	2.47 R

*R Large residual*