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Demographic and Cultural Factors Influencing the Adoption of B2C E-Commerce in SCO Region

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Method: We used 5 individual factors including gender, age, education, employment, income data from The World Bank Global FINDEX dataset and 6 cultural factors including power distance, individualism, masculinity, uncertainty, long term orientation data from Hofstede's country's cultural indexes to see the detailed definition of E-commerce users in SCO countries. Totally The World Bank Global FINDEX dataset included 11227 face-to-face interviews of SCO population.

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Demographic and Cultural Factors Influencing the Adoption of B2C E-Commerce in SCO Region

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Results: For the individuals perspective this study results showed that main E-commerce users in SCO countries are employed young females with high education and high income. For the nationals perspective countries with high individualism with low uncertainty avoidance and more restraint are more active in E-commerce. But power distance, masculinity, long term orientation indexes did not show any significant results.

Conclusions: SCO, as one of the main intergovernmental organizations in Eurasia, is taking measures to develop e-commerce in the region. However, SCO member states vary in terms of e-commerce due to dissimilar economic situations and cultural differences. Therefore it is important for the officials to see and learn the country's differences and there is a certain vacancy for the males and older buyers that can be used as an key to open new market and develop E-commerce in the future.

Shanghai Cooperation Organization (SCO), as one of the main intergovernmental organizations in Eurasia, is taking measures to develop e-commerce in the region. However, SCO member states vary interms of e-commerce experience due to dissimilar economic situations and cultural difference.

The purpose of this paper is to examine the factors that affect B2C e-commerce adoption in the SCO region. The main objective of the study is to integrate the demographic characteristics with Hofstede's cultural dimensions in order to determine the factors of e-commerce adoption among consumers in SCO member states.

Result shows in SCO countries, e-commerce adoption is more spread amongst young females who are currently employed, and therefore have high education level and income. From the national cultures perspective SCO member countries with high individualism, low uncertainty avoidance and low indulgence level have more e-commerce costumers than the other SCO member states.

Keywords: *e-commerce, B2C, developing countries, shanghai cooperation organization, SCO.*

I. Introduction

Increasing from 400 million in 2000 to more than 4.72 billion users as of April 2021 [1], the Internet is a worldwide network, which is used not only for communication but also for business. One of the internet benefits and tool to promote new business forms is e-commerce, which has entered our lives in the late 1990s and became essential during COVID-19 lockdowns. If in the 1990s e-commerce was just an economic activity conducted via electronic connections, in 2020 it was described as a process of production, sale, distribution and advertising of products online. (RolfT, 2006; UN ESCAP report, 2019)

Digitalization speed, substantial growth of internet penetration, and recently, the restrictions because of COVID-19 has accelerated the e-commerce growth and according to United Nations Conference on Trade and Development (UNCTAD) news[2], in 2019 the worldwide e-commerce sales raised up to $26.7 trillion, which is equivalent to 30% of global GDP, and 4% up from 2018.As e-commerce is characterized as one of the main criteria for information technology revolution (Nanehkaran, 2013) and heart of Sustainable Development Goals[3], many researchers have developed e-commerce adoption and implementation frame works related to consumers and online enterprises. Consumer related researches are focusing on behavioral issues and segmentation; the researches on enterprises are mostly analyzing store features, credibility and reputation, and online shopping tools (Farid et. al, 2016). However, the prevailing amount of these e-commerce studies are focusing on consumers and enterprises of developed countries, and very few are conducted on developing or least developed countries.

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[1] https://wearesocial.com/us/blog/2021/04/60-percent-of-the-worlds-population-is-now-online

[2] https://unctad.org/news/global-e-commerce-jumps-267-trillion-covid-19-boosts-online-sales

[3] http://sdg.iisd.org/news/unctad-reviews-covid-19-impact-on-e-commerce-digital-trade

(Richard et.al, 2008; Robert Jeyakuamr, 2009; Japhet E et.al, 2010) As developed countries are mostly hyper-digitalized, developing and least developing countries are lagging behind and in danger to fall behind being unable to transform data into a digital value (World Bank note, 2020). The lack of sufficient infrastructural, socio-economic and sometimes even the absence of national strategies as well as reliable scholarly researches have formed a major obstacle in e-commerce adoption and usage in developing countries (Kathryn M., 2011). Moreover, there is a lack of researches about cultural influence combined with demographics data on e-commerce adoption and usage focusing on developing countries or even on regional blocs. Herein, the Shanghai Cooperation Organization (SCO) region, which has almost half of the world's population from developing and transition economies, becomes the perfect niche for research.

The objective of this paper is to examine B2C e-commerce adoption in member states of SCO, by integrating demographic characteristics with Hofstede's cultural dimensions. The next section contains a literature review, followed by a methodology that comprises used data and its sources. The fourth section is a discussion of findings and the final section includes conclusion, followed by a list of references.

II. Literature Review

a) *E-commerce adoption factors and findings*

The definition of e-commerce has been changing over time and it is not completely clear. For example, if at the beginning e-commerce was just an economic activity conducted via electronic connections (Rolf T, 2006), in 2000 it was described as a computer transaction of ownership and/or rights to use goods or services (Atrostic et.al, 2000). The growth of internet penetration and technological development has given a broader opportunity to e-commerce and soon it became the main measure for economic communication and information technology revolution (Nanehkaran, 2013). In 2015 Shahriari (Shahriari, S., Shahriari et.al, 2015), have broadened the previous definitions and stated that e-commerce nowadays consists of data transfer, collection systems, and electronic funds followed by internet marketing, online transaction processing, and therefore supply chain and inventory managements.

As the functions and activities of e-commerce have extended, the market participants were divided into e-commerce types, such as business with business (B2B); business with consumers (B2C); business with government institutions (B2G); public authorities with government institutions and firms (G2G) and consumers with each other (C2C), etc (Margarital šoraitė et. al, 2018). Even though e-commerce has various types, only two of them are prevailing among market participants: according to the report (UNCTAD report, 2021), B2B transactions amounted to 83%, B2C to 16% of the total e-commerce sales in 2018.

While e-commerce is considered a poverty reduction tool its implementation remains uneven across the globe (Kwak J et.al, 2019). Scholars have conducted various researches on e-commerce usage and most of them have considered economic, technological, and political issues as major influencing factors. (Kamel et.al, 2015; Yi-Shun, 2008; Kariyawasam et.al, 2008). Moreover, in order to know if country is ready to partake in electronic activities and to obtain benefits scholars analyze the electronic readiness (e-readiness) of countries. The most cited e-readiness variables include: infrastructure (technology, connectivity, social and cultural), environment (legal, business, and policy), consumer and business adoptions, and following services. (Danish, 2006; Hassan et.al, 2014; Alice, 2007) When it comes to technology adoption most of the researchers are using Technology Acceptance Model, Theory of Reasoned Actions, Theory of Planned Behavior as base theories, and DeLone and McLean model in the information systems model (Kamel et.al, 2015; Yi-Shun, 2008; Mei Cao et.al, 2005; Palumbo F, 1998).

B2C adoption factors studies can be divided into two sections: behavioral and segmentation. Behavioral issues articles are focusing on shopping motivation (Scarpi D et.al, 2014; Davis Ret.al, 2014; Chiu CM et.al, 2014), emotional factors (Chou SW et.al, 2015; Chen CW et.al, 2013;PonteviaAfa et.al, 2013), shopping experience (Thamizhvanan et.al, 2013; Spake DF et.al,2011), risk and benefit perceptions (Hong IB et.al, 2013; Liang Ar et.al, 2014; Zhang G et.al,2011). Based on these articles it can be said that intention to purchase online is positively correlated with time spent online. Moreover, the regular online purchase increases trust towards online platform, leads to higher purchase and therefore reduces perceived risk. (Thamizhvanan et.al, 2013; Spake DF et.al, 2011) Furthermore, as e-commerce consumers consist of heterogonous groups with different needs and expectations, researchers analyzed consumers based on demographic characteristics (Farid et. al, 2016; Jung Wan, 2010). Conclusions state that the young, unmarried male population (Clemes et. al, 2014; Jayawardhena et. al, 2007) is more engaged in online shopping while income and education level (Clemes et.al, 2014; Bhatnagar A, 2007) can influence the e-commerce adoption and implementation among them.

Gibbs (Gibbs et.al, 2003) concluded that B2C e-commerce is driven by local consumer markets, which combines consumer individual characteristics and national culture. Despite the fact that cultural factors were cited as significant influences on e-commerce adoption (Bingi P et.al, 2000; Alexander Y et.al, 2006), very few studies were conducted on this matter. (Smith R et. al, 2013; Kim J et. al, 2013; Mee LY et. al, 2015).

Moreover, there is a lack of researches, which integrate the demographic and cultural factors of e-commerce adoption not only in developing countries but also in regional blocks, such as the Shanghai Cooperation Organization.

E-commerce in Shanghai Cooperation Organization member states

b) SCO cooperation for e-commerce development

Shanghai Cooperation Organization (SCO), one of the main intergovernmental organizations in Eurasia, was established in 2001 and has eight member states: China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan Pakistan, and India. As home to nearly half of the world's population, SCO member states cover three-fifths of the Eurasian continent and contribute about 20 percent to world GDP[4]. While its original main focus was to ensure regional stability and security in the region and to fight against "terrorism, extremism, and separatism" (Stephen G, 2018), the SCO recently has more committed to fostering deeper economic integration and socio-economic sphere between member states[5].

Since 2019 SCO is taking measures to develop e-commerce in the SCO region: one of the main topics of the talks held in Tashkent on November 2, 2019, was the prospect of economic partnership among SCO member states and the adoption of the trade and economic cooperation program until 2035[6]. Following that in November 2020, member states have signed the "Statement by the SCO Heads of State Council on Cooperation in the Digital Economy". Furthermore, on 7th June 2021, SCO Secretariat and Alibaba Group delegation had an online meeting, whereas SCO Secretary-General Vladimir Norov stated that member states are developing draft documents aimed at unlocking potential and using opportunities to increase digitalization in the region[7].

As a member state and country with CNY 38 trillion e-commerce transactions in 2020[8], China is actively proposing to develop the digital economy in the SCO region (LiKeqiang, 2020). Considering the fact that China has launched a "Digital Silk Road" initiative in 2015 and signed cooperation agreements with 16 countries within it (Steve Feldstein, 2020), China experience will be a priority in SCO; however, it is uncertain whether SCO member states have the capacity for adoption and diffusion of such e-commerce experience.

c) B2C e-commerce in SCO member states

One of the most reliable B2C e-commerce indicators is the UNCTAD B2C e-commerce index, which indicates the readiness of a country to support online shopping. UNCTADB2C e-commerce index includes the following variables: account ownership at a financial institution or with a mobile-money-service provider (percentage of population ages 15+); individuals using the internet (percentage of population); postal reliability index; secure internet servers (per 1 million people). Table 1 shows SCO member states ranking in UNCTAD B2C e-commerce index from2016-2020:

[4] http://eng.sectsco.org/news/20191023/590687.html
[5] http://eng.sectsco.org/news/20210607/765371.html
[6] http://eng.sectsco.org/news/20190926/583587.html
[7] http://eng.sectsco.org/news/20210607/765371.html
[8] http://eng.sectsco.org/news/20210510/750204.html

Table 1: SCO member states'UNCTADB2C e-commerce index

MemberState	B2Ce-commerceindex				
	2016*	2017**	2018**	2019***	2020***
China****	64	65	63	56	55
India	90	83	80	73	71
Kazakhstan	88	51	53	57	60
Kyrgyzstan	109	117	114	111	97
Pakistan	105	120	117	114	116
Russia	47	43	42	40	41
Tajikistan	-	-	-	129	121
Uzbekistan	108	106	86	93	107

* Ranking among 137 countries
** Ranking among 151 countries
*** Ranking among 152 countries
**** China Mainland

Russia was ranked 41st among 152 countries in the UNCTAD index and it's the highest index among SCO member states. Although China is leading in terms of e-commerce sales in the world, it was ranked 55th because UNCTAD variables are focused on connection quality and banking services rather than e-commerce sales scale. From 2016 until 2018 Tajikistan B2C e-commerce wasn't indexed and as of 2020, Tajikistan was ranked 121st, which is the lowest index among SCO member states. Overall the average ranking of SCO member states in theUNCTADB2C e-commerce index was 83rd in 2020.

According to the Digital 2021 Global Overview Report, SCO member states have 1.8 billion internet users and only 545 million of them made the online purchase and/or paid bills online. The detailed data is shown below:

Table 2: SCO member states internet penetration rate and B2C e-commerce statistics.

Member State	Total population (million)**	Total internet users (million)	Internet penetration (%)	Users, who make an online purchase and/or pays bills Online (million)	Online shoppers' percentage (%)
China*	1402	939.8	65.2%	459	48.8%
India	1380	624	45%	26	4.3%
Kazakhstan	18.75	15.47	81.9%	3.8	24.3%
Kyrgyzstan	6.59	3.32	50.4%	0.16	5%
Pakistan	221	61.34	27.5%	5	8%
Russia	144.1	124	85%	49	39.6%
Tajikistan	9.53	3.36	34.9%	0.43	12.8%
Uzbekistan	34.2	18.6	55.2%	1.3	7.1%

* China Mainland
** World Bank

Chinese and Russian online shoppers lead among total internet users in SCO member states. According to the UNCTAD assessment of COVID-19 impact on online retail 2020 report, the total Chinese e-commerce sales contributed 18 percent to Chinese GDP in 2019 and Chinese B2C e-commerce sales have been ranked first in 2020 [9]. Russia has the highest internet penetration among member states and its B2C e-commerce sales reached USD31 billion, which is a 1.9 percent contribution to the country's GDP in 2019. Lately, the JP Morgan E-commerce payment trends report revealed that the Indian e-commerce market has experienced explosive growth and despite only 4.3 percent of online shoppers, e-commerce sales reached US61.1 billion, which accounts for 3 percent of total Indian retail sales in 2019.

Pakistan and Kazakhstan's B2C e-commerce sales also reached one billion USD. According to a Statist a report, the Pakistani B2C e-commerce sales were accounted for USD 2 billion in 2019and USD 4 billion in 2020 [10]. With almost 82 percent internet penetration and 3.8 million online shoppers Kazakhstan leads the B2C e-commerce among Central Asia and Caucasus countries (ResearchAndMarkets.com, 2019). In 2019 the 2000 local online stores and 13 online platforms were operating in Kazakhstan with USD 980

[9] https://unctad.org/news/global-e-commerce-jumps-267-trillion-covid-19-boosts-online-sales

[10] https://www.statista.com/study/85345/ecommerce-in-pakistan/#0

million purchase locally and USD 650 million internationally[11]. In the first half of 2020, the total amount of the e-commerce market reached USD1 billion[12].

Among SCO member states B2C e-commerce is least developed in Kyrgyzstan, Uzbekistan, and Tajikistan. More than half of Kyrgyzstan and Uzbekistan population have an internet, but the online shoppers' percentage is below 10 percent. In 2019 the e-commerce indicators of Uzbekistan were increased by 6.7 times and online shopping amounted to USD 26 million, which is 11 percent of the total trade volume of Uzbekistan[13]. As a country that was ranked 121stin the B2C e-commerce index, the e-commerce situation in Tajikistan remains unclear. As of 2013, there were no online stores in Tajikistan and according to IMF [14], Tajikistan Government is planning to improve a digital economy and up surge financial inclusion from 47 percent in 2017 to 65 percent in 2022. Despite these goals, the Digital 2021 Global overview report stated that only 430 thousand Tajikistani consumers made a purchase online and/or paid bills online as of January 2021, which is 13 percent of total internet users in Tajikistan.

As shown above, the B2C e-commerce situation varies among SCO member states. In summary, the overall e-commerce purchase statistics are low: as of January 2021, the average internet penetration in SCO member states was 56 percent, and only 19 percent of total internet users made online purchases and/ or paid bills online. Without doubt there are economic, infrastructural and politic factors on e-commerce adoption in SCO member states. However, this paper will precisely focus on demographic and cultural factors of e-commerce adoption in SCO region.

Factors affecting adoption of e-commerce and hypotheses development Demographic factors As e-commerce consumers consist of heterogonous groups with different needs and expectations, from the beginning of the 2000 s researchers started analyzing the socio-demographic factors impacting the online purchase of consumers (Farid et.al, 2016; Jung Wan, 2010) Based on researches it was concluded that age, education, gender, employment, and income have a significant influence on consumers' intention to purchase online (Tan M et. al, 2000; WuSi, 2003; AfizahH et. al, 2009;BenekeJ et. al, 2010; Leo Sin et. al, 2001)

However, the main online shopping concepts were established in the Western countries (Usunier J et. al, 2005), and the results may not be applicable to SCO countries (Ibrahim A. et. al, 2010; IbrahimA. et. al, 2014). Therefore, we have are search gap on demographic factors, which influence the e-commerce adoption in SCO member states.

Age According to Hwang and James (Hwanget.al, 2006; James W. et.al, 2017), retailers and marketers should consider different age groups, as they have different online purchasing behavior. Chaney and Williams (Chaney et.al, 2017; Williams et.al, 2011) classified age groups into: Silent generation (1930-1945), Baby boomers (1946-1964); Generation X (1965-1977); Generation Y (1978-1994); Generation Z (1995-2009) and Generation Alpha (2010onwards).

Parment A's two studies (Parment A, 2011, 2013) on different age groups reported that each generation differs by preferences and values, which forms choices, methods for shopping. Jokisuu (Jokisuu et. al, 2007) stated that age-relate dissues for older people such as deteriorating eyesight, motor functions, and cognitive capabilities are causing problems for thee-commerce adoption. This view was broadened by Donna and Reisenwitz (Donna W. et. al, 2010; Reisenwitz et.al, 2009), who reported that people born between 1930-1945 are not likely to use information technologies and therefore don't purchase online much. Furthermore, among all generations' Baby boomers understand the usefulness of e-commerce, but has lowest opinion regards its trust worthiness.

The prevailing amounts of studies are conducted on differences and e-commerce usage of Generation X and Y (Lissitsa S et.al, 2016; Reisenwitz TH et.al, 2009; Jokisuu E. et.al, 2007; VigilK, 2006). The first generation, whose internet consumption exceeded the television consumption, is Generation Y. However according to Barnikel, Vigil, and Bhatnagar (Barnikel, 2005; Vigil, 2006; Bhatnagar A et.al, 2004) they use less online banking than Generation X.Lissitsa (Lissitsa S. et. al, 2016) stated that although Generation Y use internet more than Generation X, the percentage of online purchases is prevailing among Generation X. As for Generation Z, Flippin, Priporas, and Jorge (Flippin et.al., 2017; Priporas et.al., 2017; Jorge Viera et.al., 2020) characterized them as generations with trust and experience in technologies, who are doing a lot of research before purchasing and like to share their opinions on digital platforms.

Therefore, the following hypothesis is proposed:

Hypothesis 1:

Online purchase is prevalent among young consumers of SCO member states.

Gender

Men and women differ not only in physical roles, but also in consumer behavior (Mitchell et.al, 2004), adoption of technology (Slyke et.al, 2010; Frederick P et.al, 2018), and the question of how much they differ in online purchase requires empirical research.

[11] https://primeminister.kz/ru/news/obem-rynka-elektronnoy-torgovli-za-i-polugodie-2020-goda-sostavil-435-mlrd-tenge-2861921

[12] https://kursiv.kz/news/rynki/2020-06/za-10-let-obem-rynka-elektronnoy-torgovli-v-kazakhstane-vyros-v-20-raz

[13] https://yuz.uz/ru/news/elektronnaya-torgovlya-v-mire-i-uzbekistane

[14] https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=26386

Gender difference in e-commerce has been observed from diverse perspectives, such as the perceived risk of online behavior (Garbarino E et.al, 2004), and technology acceptance (Ali et.al, 2007; Constance P et.al, 2006), etc. In terms of technology acceptance and usage, several studies state that men are more technology-oriented, and therefore use the internet more than women (Villarejo-Ramos et.al, 2014; Werner et.al, 2011). In line with these studies, Sebastianello, Vake, and Chang (Slyke et.al, 2010; Sebastianelli R et.al, 2008; Chang M.K et.al, 2005) reported that products sold on e-platforms are more focused on men and therefore men purchase online more frequently than women. The reasons why women purchase less than men were proposed by several types of research and the majority of conclusions stated that women have lower trust and higher perceived risk towards online shopping (Garbarino E et.al, 2004; Gichang Cho et.al, 2009). However, a study by Wu revealed that even though men use online banking more frequently than women, apparently women have more trust to the online platforms security than men. (Wu W. et.al, 2016) Other reasons were found by Dittmar and Cho (Dittmar H et.al, 2004; Cho J, 2004), who concluded that online purchase is less attractive to women because of the absence of direct interaction with sellers and physical evaluation of products.

Despite to above conclusions, Andrej (Andrej S.et.al, 2018), Donna (Donna W., 2010), and Abu H. (Abu H, 2021) found that men and women participate at equal rates, and in some cases, women even outnumber in online purchases.

As it can be seen the impact of gender on online purchase has been analyzed and the results are not conclusive. Therefore, we propose that men purchase online more than women in SCO member states.

Hypothesis 2:

Online purchase is prevalent among male consumers of SCO member states.

Education

Online shopping differs from the traditional way of purchasing products and requires a set of technical skills, such as web browsing, credit or debit card usage, etc. Better educated consumers don't only use the information technology for diverse tasks, comprehensive search, but also use their cyber-fluency to find products that match their needs. (Sharon E et.al, 1987; Mathwick C. et.al, 2001; Punj G, 2011). Tan, Wu Si, Afizah, Beneke, Leo (Tan et.al, 2000; Wu Si, 2003; Afizah Hashim et.al, 2009; Beneke, J. et.al, 2010; Leo Sin et.al, 2001) studies concluded that education level influences the adoption, usage of e-commerce and the online shopping behavior. Moreover, Delia (Delia et.al, 2012) found that education has an impact on online purchases regularity and how consumers perceive the products. Consumers with higher education consider price as an important factor for product perception, whereas users with low education consider service quality and subjective norms important in online shopping (Crespo et.al, 2010). Thus far, according to Mills (Mills et.al, 2003) less educated people even avoid the internet because they assume that digital content is concentrating on better-educated consumers. These conclusions were also supported by Goldfarb, Allred, Federici, and Chuang (Goldfarb et.al, 2008; Allred et.al, 206; Federici T, 2009; Chuang TT et.al, 2009), whose studies proved that education level and customer's tendency to shop online are positively related.

Despite to above, Eastman (Eastman J. et.al, 2004) and Donna (Donna W.et.al, 2010) studies stated that education is negatively correlated with online purchase among people aged 65-85 years. Therefore, we propose the following hypothesis:

Hypothesis 3:

Online purchase is prevalent among higher educated consumers of SCO member states.

Employment and income

According to an OECD report (OECD report, 2019), a higher level of education leads to better employment opportunities and therefore has a positive effect on higher earnings. In traditional studies, such as Shouvik (Shouvik S. et.al, 2018), high income is leading to higher consumption and affects the choice of store. Siyal, Hwang, Haque's studies (Hwang W et.al 2006; Siyal et.al, 2006; Haque et.al, 2011) found that income level is not only a significant factor for store shopping but also a positive approach for e-commerce adoption and purchase. Following these assumptions, some studies stated that online customers are not only employed, but also wealthier than traditional store consumers (Allred CR et.al, 2006; Punj G, 2011; Perez Hernandez et.al, 2011). Depending on earnings, customers with higher income prefer to save time and shop online, whereas customers with lower income prefer to save money (Punj G, 2011).

Based on the above assumptions, we propose the following:

Hypothesis 4:

Online purchase is prevalent among employed consumers of SCO member states.

Hypothesis 5:

Online purchase is associated with higher income in SCO member states.

Cultural factors

One of the internationally recognized theories to understand cultural differences is Hofstede's cultural dimensions model, which was first published in the late 1970s, and updated in 1991 and 2010 (Hofstede 1980; 2001; 2010). Many researchers developed conceptual models analyzing Hofstede's cultural dimensions with

consumers' online purchase behavior and e-commerce adoption and found a significant connections among them (Francesca P et.al, 2021; Zhi Yang et.al, 2019; Heli H. et.al, 2018; Eungkyu K. et.al, 2016; Kathryn M, 2011). Therefore Hofstede's six cultural dimensions will be analyzed in this paper: power distance and uncertainty avoidance indexes; individualism; masculinity; long or short-term orientation and finally, indulgence.

Power distance index

Power distance index (PDI) measures the country's power distribution and how citizens accept disposal of it. Due to unequal power distribution, most Asian countries have a high PDI index and hierarchical relationship between boss and employee. (Doney et.al, 1998; Yoon, 2009; Rinne et.al, 2013; Grazzini et al., 2020) On contrary, most western countries have a low PDI, and westerns more often consult with others and participate in decision making (Doney et.al, 1998). As for PDI of SCO member states, Rinne and Yoon (Rinne et.al, 2013; Yoon, 2009) have concluded that China and India have a high power distance index, which affects the consumer behavior and leads to less trust in online shopping. Despite all the above, a study by Abu (Abu H., 2021) stated that power distance does not explain the difference in e-commerce usage between countries. Summarizing above, we propose the following hypothesis:

Hypothesis 6:

Online purchase is prevalent among SCO member states with a lower PDI.

Individualism versus collectivism

Individualism (IDV) versus collectivism (COL) dimension refers to ties between people in society. In an individualist society, the connection between people is low and there is no significant support between members. On contrary, in a collectivist society, the duties and prizes are shared in the group (Francesca P et.al, 2021). Moreover, Ligia (Ligia M, 2005) concluded that saving time is more important for a collectivist society, while individualists prefer better prices. According to Hofstede and Doney (Hofstede. G, 2010; Doney et.al, 1998), although in collectivist cultures have higher trust to e-platforms; individualist country citizens are more likely to try various e-platforms and to switch between them. Based on the above assumptions, we propose the following hypothesis:

Hypothesis 6:

Online purchase is prevalent among SCO member states with higher IDV.

Masculinity versus femininity

The masculinity (MAS) versus femininity (FEM) dimension characterizes whether gender has an influence on society's roles or not. According to Hofstede G. (Hofstede G., 2001) masculine cultures value success, aggressiveness, while feminine cultures focus on humility, sensitivity, and quality of life. Most Asian countries are characterized as feminine, as there is no strong differentiation between genders, whereas western countries are referred to as masculine, because of their competitive nature. As for online shopping and e-commerce adoption, Francesca and Srite (Srite et.al, 2006; Francesca et.al, 2021) studies revealed that e-commerce is preferred by feminine society, and citizens of a masculine culture have higher user- friendliness of the platform. However, some studies stated that perceiving an online store is important for both societies (Schoorman et al., 2007; Schumann et al., 2010).

Hypothesis 8:

Online purchase is prevalent among SCO member states with lower MAS.

Uncertainty avoidance index

The uncertainty avoidance index (UAI) describes the degree to which individuals respond and tolerate uncertainties and ambiguities. Hofstede (Hofstede G., 2010) described uncertainties as "situations, which are unusual, unfamiliar, and unforeseen". Countries with high UAI prefer to constrain uncertainty by various rules and codes, and are often characterized as less prone to accept risks (Francesca P et.al, 2021). On contrary, people from lower UAI countries are willing to accept risks, and expected to faster adopt modern technologies and therefore, the e-commerce (Gong W., 2009; Hwang Y., 2012). The majority of studies concern Western countries as countries with lower UAI, and Asia as countries with higher UAI (Doney et.al, 1998;

Hofstede G, 2010; Francesca P et.al, 2021). Based on above assumptions, we propose the following hypothesis:

Hypothesis 9:

Online purchase is prevalent among SCO member states with lower UAI.

Long-versus short-term orientation

Short-term oriented cultures focus on virtues related to the past and current situations, while long-term oriented focus on the upcoming situations (Hofstede G, 2011). Long versus short- term orientation not only affect the value perception but also influence the perception and trust. Harris (Harris S et.al, 1999) found that long-term-oriented cultures make long-lasting businesses only with trusted partners. In recent studies, researchers found that collectivism and long-term orientation are positively correlated with trust disposition and help to build trust in e-commerce. (Hallikainen et.al, 2018)

Following these assumptions, we hereby propose the following:

Hypothesis 10:

Online purchase is prevalent among long-term-oriented SCO member states.

Indulgence versus restraint

Indulgence (IVR) versus restraint is the sixth and last cultural dimension by Hofstede G. This dimension reveals how society reacts to basic human needs and what social norms are followed. Societies that have weaker controls over feelings and needs are considered as indulgent countries, while countries with strict social norms considered as restraint (Hofstede, 2010). According to Hofstede G and Yavuz (Hofstede G, 2011; Yavuz, 2014) studies in indulgent society friends, leisure, equal gender roles, freedom of speech are considered as important. On contrary, restrained countries focus more on: savings, moral discipline, and order in the nation. As restraint countries mostly value duty over pleasure and interested in savings, we hereby propose the following hypothesis:

Hypothesis 11:

Online purchase is prevalent among restraint SCO member states.

III. Research Methodology

a) Data source and description

The following research model will be used to test above eleven hypotheses:

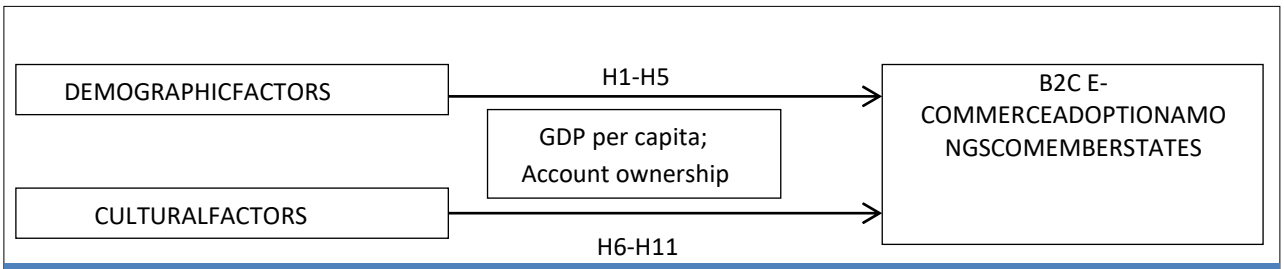

Figure 1: Research model

The World Bank Global FINDEX data is current most significant dataset on financial inclusion and used to analyze economic situations of individual countries and regional or financial blocs such as ASEAN, SAARC and WAEMU. (Jukan M et.al, 2016; Asli D. et.al, 2017; Dharmendra S. et.al, 2020; Abu H., 2021; Sionfou S., 2021). The B2C e-commerce adoption and usage among SCO member states are analyzed based on measurement "if the participant purchased something online in the past year" from latest FINDEX dataset. Moreover, the five independent demographic variables and account ownership data are also derived from FINDEX. In total this study analyzed 11227 face-to-face interviews with SCO citizens (China 3627, India 3000, Kazakhstan 1000, Pakistan 1600, and Russia 2000); whereas 26 respondents didn't mention their age, 32 education level and 161 respondents' online purchase data are missing. The details are stated in Table 3.

Six independent variables such as cultural country-level dimensions (power distance and uncertainty indexes, individualism, masculinity, orientation term and indulgence) are derived from Hofstede's site (www.hofstede-insights.com) and measured in scale from 0 to 100. Moreover, we assume that GDP per capita and account ownership is correlated with internet penetration and online purchase, and thereby include them as control variables in the study.

The detailed definitions of variables are included below:

Table 3: Definitions of variables

Variable	Definition	Source
Dependent variable		
E-commerce adoption	Participant purchased online in the past year=1; no=0	FINDEX
Independent variables (Demographic factors)		
Age	Age of participants	FINDEX
Gender	Male=1,female=0	FINDEX
Education	Primary=1,secondary=2,tertiary=3	FINDEX
Employment	Employed=1;unemployed=0	FINDEX
Income level	Poorest=1;Second=2;Middle=3;Fourth=4;Richest=5	FINDEX
Independent variables (Cultural factors)		
Power distance	The degree to which citizens accept country's distribution of power.	Hofstede
Individualism	Ties between people in society, where as individuals take care of themselves or families.	Hofstede
Masculinity	The degree to which gender has an influence on society's roles.	Hofstede
Uncertainty avoidance	The degree to which individuals respond and tolerate uncertainties and ambiguities.	Hofstede

Long-term orientation	The degree to which society relays to the future to solve the problems.	Hofstede
Indulgence	The degree to which society reacts to basic human needs and what social norms are followed.	Hofstede
Control variables		
Account ownership	Have an account at a financial institution=1; Don't have an account at a financial institution=0	FINDEX
GDP percapita	Gross domestic production divided by population	World bank

b) Data limitations

Cultural dimensions of Kyrgyzstan, Tajikistan and Uzbekistan are missing on Hofstede's site and according to the Digital 2021 Global Overview Report consumers of these three countries are comparatively not active in online purchases: total amount of users who made an online purchase and/or paid bills online in Kyrgyzstan is 0.16 million, Tajikistan is 0.43 million and Uzbekistan is 1.3 million, which is relatively low compared to other five SCO countries. Moreover, there is a certain gap of researches on cultural dimensions of these three countries and relying on studies by Seyil, Dadabaev and Kapcova (Seyil N, 2013; Dadabaev T, 2004; Kapcova A, 2018) we assume that Kyrgyzstan, Tajikistan and Uzbekistan are collectivist countries with different cultural dimensions. For instance, study by Seyil (Seyil N, 2013) stated that Kyrgyzstan is masculine country with low PDI and medium-term orientation. Dadabaev and Kapcova (Dadabaev T, 2004; Kapcova A, 2018) analyzed Uzbekistan and Tajikistan's cultural dimensions and stated that they both have high PDI. Moreover, researchers found that Uzbekistan is masculine long-term oriented country with high uncertainty avoidance index, whereas Tajikistan is short-term oriented feminine country with high indulgence index. As Hofstede study did not cover these three countries data and researches are not up to date, we will focus on five SCO member states, namely, China, India, Pakistan, Kazakhstan and Russia and analyze demographic and cultural dimensions data of these five countries.

c) Descriptive analysis

In this study we have conducted three descriptive analyses: two correlation analyses on GDP and demographic factors and one on cultural dimensions of SCO member states.

In order to test control variables, we conducted the analysis on GDP per capita with internet penetration rate, global cyber security index and total population of SCO member states. The economic classification of five member states is derived from FINDEX; the global cyber security index is from International Telecommunication Union; GDP per capita and total population data are from World Bank; and internet penetration rate from Digital 2021 Global Overview Report. The detailed data is included below:

Table 4: Correlation analysis of GDP and internet factors

SCO member states	Economic classification (income)	GDP percapita (USD mln)	Internet penetration rate (%)	Global cyber security index (outof100)	Total population (million)
China	upper-middle	10500	65.2	92.53	1402
India	lower-middle	1900	45	97.5	1380
Kazakhstan	upper-middle	9055	81.9	93.15	18.75
Pakistan	lower-middle	1193	27.5	64.88	221
Russia	upper-middle	10126	85	98.06	144.1
GDP percapita (USDmln)		1			
Internet penetration (%)		.903*	1		
Global cyber security index		.574	.730	1	
Total population (million)		-.118	-.285	.312	1

*.Correlation is significant at the 0.01 level (2-tailed).

Five member states of SCO are countries with upper and lower-middle income, whereas the average GDP is USD 6555 million, internet penetration rate is 61%, and global cyber security index is 90. Based to correlation analysis results, stated on Table 5, we can see that our control variable, the GDP per capita, is positively correlated with an internet penetration rate at 0.90 and global cyber security index at 0.57. This proves our assumption that GDP has an impact on internet penetration and online purchase.

The second correlation analysis we conducted on demographic factors of SCO individuals. The analysis on FINDEX dataset from 14,227 face to face interviews with SCO citizens shows us that majority of respondents are employed female, who have secondary education, middle income and average age of 42 and correlation results are significant (Table 5).

Table 5: Demographic factors correlation analysis

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Purchased online	1.0000													
2	Gender	-0.0138	1.0000												
3	Age	-0.2194	-0.0277	1.0000											
4	Primary	-0.2453	-0.0440	0.1607	1.0000										
5	Secondary	0.1147	0.0732	-0.1301	-0.7835	1.0000									
6	Tertiary	0.2117	-0.0416	-0.0578	-0.3798	-0.2703	1.0000								
7	Poorest20	-0.1247	-0.0181	0.0671	0.1622	-0.1047	-0.0965	1.0000							
8	Second20	-0.0795	-0.0254	0.0109	0.0977	-0.0562	-0.0685	-0.2404	1.0000						
9	Middle20	-0.0103	-0.0129	0.0041	0.0133	-0.0051	-0.0134	-0.2446	-0.2372	1.0000					
10	Fourth20	0.0570	0.0026	-0.0125	-0.0722	0.0624	0.0192	-0.2525	-0.2449	-0.2492	1.0000				
11	Richest20	0.1512	0.0519	-0.0675	-0.1930	0.0991	0.1535	-.02592	-0.2514	-0.2558	-0.2641	1.0000			
12	Employment	0.1761	0.2749	-0.1144	-0.0638	0.0144	0.0784	-0.0341	-0.0246	-0.0059	0.0221	0.0408	1.0000		
13	Hasanaccountatfin.institution	0.2744	0.0672	0.0406	-0.1904	0.1006	0.1466	-0.-981	-0.0472	0.0096	0.0451	0.0870	0.2030	1.0000	
14	GDPpercapita	0.3317	-0.0708	-0.3301	-0.1777	0.1044	0.1200	0.0382	0.0087	0.0009	-0.0058	-0.0407	0.1313	0.1851	1.0000

Based on above analysis we can state that our second control variable, the account at financial institution, is significantly correlated with online purchasing, showed on Table 6 (.274). Online purchase is also positively correlated with employment also secondary and tertiary education but negatively correlated with primary education that suggests higher the education higher the online purchase adoption, whereas age and gender is not. Also from the income side we see that online purchase is positively correlated with those who has more earnings such as Fourth 20% of income level holders also the Richest 20% of the population but negatively correlated with the less income owners such as poorest 20%, second 20%, middle 20% level income owners.

This proves the statement from OECD report (OECD report, 2019), which states that a higher level of education leads to better employment opportunities and therefore has a positive effect on higher earnings.

Lastly, we analyzed cultural dimension of SCO member states.

Table 6: Hofstede's cultural dimensions of SCO member states

SCO member states	Power distance index	Individualism	Masculinity	Uncertainty avoidance	Long-term orientation	Indulgence
China	80	20	66	30	87	24
India	77	48	56	40	51	26
Kazakhstan	88	20	50	88	85	22
Pakistan	55	14	50	70	50	0
Russia	93	39	36	95	81	20
Total average	78.6	28.2	51.6	64.6	70.8	18.4

Five member states of SCO, namely China, India, Kazakhstan, Kyrgyzstan and Pakistan are collectivist countries with high power distance index (total average score is 78.6). Citizens consider themselves as members of group and value personal interdependence. As region with strong hierarchy in power distribution it mostly has a strategy, aimed to bring benefits in the future (long-term orientation average is 70.8). Citizens of member states have high uncertainty avoidance (total average score is 64.6) and restraint score, which means that they value principles more than practice and follow strict social norms. Four member states beside Russia show strong characteristics of masculine countries and thereby gender plays an important role in society. The detailed average cultural dimensions are available in Table 6 and Table 8. Overall, the difference between SCO members shows unique distribution to the study to show how the individual in different countries adopt online purchasing and interact differently in e-commerce activities.

Table 7: Overall descriptive statistic and correlation

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Purchased online	1.000																			
2	Age	-0.2194	1.000																		
3	Gender	-0.0138	-0.0277	1.000																	
4	Primary	-0.2453	0.1607	-0.0440	1.000																
5	Secondary	0.1147	-0.1301	0.0732	-0.7835	1.000															
6	Tertiary	0.2117	-0.0578	-0.0416	-0.3798	-0.2703	1.000														
7	Employment	0.1761	-0.1144	0.2749	-0.0638	0.0144	0.0784	1.000													
8	Poorest20	-0.1247	0.0671	-0.0181	0.1622	0.1047	-0.0965	-0.341	1.000												
9	Second20	-0.0795	0.0109	-0.0254	0.0977	-0.0562	-0.0685	-0.0246	-0.2404	1.000											
10	Middle20	-0.0103	0.0041	-0.0129	0.0133	-0.0051	-0.0134	-0.0059	-0.2446	-0.2372	1.000										
11	Fourth20	0.0570	-0.0125	0.0026	-0.0722	0.0624	0.0192	0.0221	-0.2525	-0.2449	-0.2492	1.000									
12	Richest20	0.1512	-0.0675	0.0519	-0.1930	0.0991	0.1535	0.0408	-0.2592	-0.2514	-0.2558	-0.2641	1.000								
13	Power distance	0.2087	0.2442	-0.0865	-0.3252	0.1919	0.2205	0.1112	-0.0105	0.0232	0.0179	-0.0019	-0.0274	1.000							
14	Individualism	-0.1169	-0.0668	-0.0202	-0.0845	0.0438	0.0666	-0.0072	-0.0493	0.0238	0.0192	-0.0033	0.0100	0.3794	1.000						
15	Masculinity	0.0660	0.0304	0.0756	0.4197	-0.2512	-0.2838	0.1096	0.0859	-0.0033	-0.0256	-0.0224	-0.0337	-0.2712	-0.3266	1.000					
16	Uncertainty avoidance	-0.0288	-0.0068	-0.0741	-0.4587	0.2791	0.3030	-0.0978	-0.0746	-0.0037	0.0219	0.0260	0.0294	0.2582	0.0295	-0.9346	1.000				
17	Long-term orientation	0.3256	0.3184	-0.0620	-0.1612	0.0964	0.1063	0.1344	0.0437	0.0060	-0.0015	-0.0054	-0.0415	0.6532	-0.4200	0.1472	0.0413	1.000			
18	Indulgence	0.1274	0.1521	-0.0178	-0.0011	-0.0032	0.0038	0.1507	0.0259	0.0251	0.0049	-0.0171	-0.0371	0.7175	0.5261	0.3301	-0.4208	0.3584	1.000		
19	Hasan account	0.2744	0.0406	0.0672	-0.1904	0.1006	0.1466	0.2030	-0.0981	-0.0472	0.0096	0.0451	0.0870	0.3513	0.2605	0.0558	-0.1103	0.1652	0.4136	1.000	
20	GDP percapita	0.3317	0.3301	-0.0708	-0.1777	0.1044	0.1200	0.1313	0.0382	0.0087	0.0009	-0.0058	-0.0407	0.7026	-0.3390	0.0774	0.740	0.9915	0.3772	0.1851	1.000

IV. Findings

In total eleven independent and two control variables were analyzed. Based on the dataset from FINDEX we have characterized not only the individual profiles of SCO customers but also figured out the average national culture dimensions of SCO member states. The detailed result of the correlation is included in Table 8:

Table 8: Overall correlation findings of e-commerce users in SCO

Dependent variable			
Purchased online in the past year			
Independent variables			
Demographic characteristics of SCO		National cultural characteristics	
Age	Negative	Power distance	Positive
Gender	Negative	Individualism	Negative
Education	Primary-negative Secondary-positive Tertiary-positive	Masculinity	Positive
Employment	Positive	Uncertainty avoidance	Negative
Income	Poorest-negative Second-negative Middle-negative Fourth-positive Richest-positive	Long-term orientation	Positive
		Indulgence	Positive
Control variables			
Account ownership percentage among five SCO member states			Positive
GDP percapita of five SCO member states (USD million)			Positive

To test the hypotheses, regression was conducted to estimate the connection between independent variables and the e-commerce purchasing behavior of respondents.

V. Results and Discussion

To see the deep down relationship between domestic and cultural factors and the e-commerce behavior of customers in 5 SCO countries we conducted 3 types of regression including control variables; demographic variables; national culture variables separately and finally run all variables.

Table 9: Regression analysis of control variables

Source	SS	df	MS	Number of obsF(5,11060)	=	11,066
Model	241.187672	2	120.593836	Prob> FR=squared	=	0.0000
Residual	1293.53355	11,063	.116924301		=	0.1572
Total	1534.72122	11,065	.138700517	AdjR-squared Root MSE	=	0.1570
					=	.34194

Purchased online	Coef.	Std.Err.	t	P>|t|	[95%Conf.Interval]	
Has an account atfin.ins	.1753525	.0070598	24.84	0.000	.161514	.189191
GDP percapita	.0000257	7.86e-07	32.76	0.000	.0000242	.0000273
_CONS	-.1243408	.0071869	-17.30	0.000	-.1384284	-.1102533

Table 9 shows the control variables only of account ownership and GDP per capita while Table 11 shows the demographic variables only and Table 12 shows the results of all dimensions of national cultural factors. At last Table 12 combines not just individual but also country-level variables with the control variables. Overall, the modulated R2 increased evidently from 0.1572 to 0.3365 from Table 9 to Table 12.

Table10: Regression analysis of demographic variables

Source	SS	df	MS	Number of obsF(5,11060)	=	11,042
Model	475.060579	11	43.1873253	Prob> FR=squared	=	0.0000
Residual	1054.9924	11,030	.096547543		=	0.3105
Total	1530.05298	11,041	.138579203	AdjR-squared Root MSE	=	0.3098
					=	.30927

Purchased online	Coef.	Std.Err.	t	P>|t|	[95%Conf.Interval]	
Age	-.007239	.0001902	-38.05	0.000	-.0076119	-.0068661
Gender	-.0170075	.0062368	-2.73	0.006	-.0292327	-.0047823
Secondary	.0139949	.0068112	2.05	0.040	.0006438	.0273461
Tertiary	.1109274	.010173	10.90	0.000	.0909865	.1308682
Employment	.030998	.0064828	4.78	0.000	.0182905	.0437055
Second20	.0173501	.0094741	1.83	0.067	-.0012208	.0359211
Middle20	.0587375	.0094624	6.21	0.000	.0401895	.0772856
Fourth20	.0980209	.0094282	10.40	0.000	.0795399	.1165019
Richest20	.1467252	.009541	15.38	0.000	.1280231	.1654272
Has an account atfin.ins	.137837	.006641	20.76	0.000	.1248195	.1508545
GDP percapita	.0000351	7.93e-07	44.21	0.000	.0000335	.0000366
_CONS	.0543776	.0117373	4.63	0.000	.0313703	.0773849

Table11: Regression analysis of cultural variables

Source	SS	df	MS	Number of obsF(5,11060)	=	11,066
Model	262.958855	5	52.591771	Prob> FR=squared	=	0.0000
Residual	1271.76236	11.060	.114987555		=	0.1713
Total	1534.72122	11,065	.138700517	Adj R-squared Root MSE	=	0.1710
					=	.3391

Purchased online	Coef.	Std.Err.	t	P>|t|	[95%Conf.Interval]	
Power distance index	0	(omitted)				
Individualism	.0019896	.0005732	3.47	0.001	.0008661	.0031131
Masculinity	0	(omitted)				
Uncertainty avoidance	-.0017931	.0002086	-8.59	0.000	-.0022021	-.0013842
Long-term orientation	0	(omitted)				

Indulgence	-.0096963	.0010453	-9.28	0.000	-.0117453	-.0076473
Has an account atfin.ins	.2063323	.0076082	27.12	0.000	.1914188	.2212458
GDP percapita	.0000355	1.64e-06	21.60	0.000	.0000322	.0000387
_CONS	.0248185	.0139067	1.78	0.074	-.0024411	.0520782

Table 12: Overall regression analysis

Source	SS	df	MS	Number of obsF(14,11027)	=	11,042
Model	514.811458	14	37.772247	Prob> FR=squared	=	0.0000
Residual	1015.24152	11.027	.092068697		=	0.3365
Total	1530.05298	11,041	.138579203	Adj R-squared Root MSE	=	0.3356
					=	.30343

Purchased online	Coef.	Std.Err.	t	P>|t|	[95%Conf.Interval]	
Age	-.0069661	.0001882	-37.02	0.000	-.0073349	-.0065972
Gender	-.0254468	.0061482	-4.14	0.000	-.0374984	-.0133952
Secondary	.0720114	.007501	9.60	0.000	.0573081	.0867147
Tertiary	.198597	.011306	17.57	0.000	.1764353	.2207588
Employment	.0276907	.0063838	4.34	0.000	.0151773	.0402041
Second20	.0227114	.009306	2.44	0.015	.0044699	.0409528
Middle20	.0597245	.0092899	6.43	0.000	.0415147	.0779343
Fourth20	.0927008	.0092592	10.01	0.000	.0745511	.1108504
Richest20	.1317881	.0093907	14.03	0.000	.1133806	.1501956
Powerdistance index	0	(omitted)				
Individualism	.0042886	.005162	8.31	0.000	.0032767	.0053004
Masculinity	0	(omitted)				
Uncertainty avoidance	-.0038616	.0002061	-18.74	0.000	-.0042656	-.0034577
Long-term orientation	0	(omitted)				
Indulgence	-.013404	.0009443	-14.19	0.000	-.015255	-.011553
Has an account atfin.ins	.1466091	.0071126	20.61	0.000	.1326672	.160551
GDP percapita	.0000495	1.52e-06	32.62	0.000	.000466	.0000525
_CONS	.2731722	.0159773	17.10	0.000	.2418538	.3044905

As for individual demographic factors, Table 9 and Table 12 shows that our results support Hypotheses 1, 3, 4, and 5 that online purchasing is more widely spread among younger buyers who have a higher education level, and are currently employed with a higher salary (Table 8). But Hypothesis 2 is not supported just because females are more active when it comes to online purchasing than men. The result is not so surprising because some other studies have already found these results before and there are both theoretical and methodological reasons to support these results. Men are much more active internet and technology users but in the last decade more and more women are introduced to the internet and became active users of online platforms especially when it comes to e-commerce platforms (Hernández B et.al, 2011). In some platforms, female customers' quantities have already exceeded the male customers' quantities (Stafford TF et.al, 2004). In national culture factors, Table 11 and Table 12 support Hypotheses 7, 9 also 11 that countries with higher individualism index, low uncertainty avoidance index, and low indulgence or more restraint have higher rates of e-commerce purchasing behavior in the population. On the other hand, Hypotheses 6, 8, and 10 did not match our initial expectations. Our results show that 3 of the 6 cultural dimensions including power distance, masculinity, and long term orientation do not show the relationship in e- commerce purchasing behavior between SCO countries, these variables are shows omitted results because they have collinearity with other variables, which means they cannot be considered as independent variables in this study. Previous studies showed that the power distance index does show the level of trust in society (Yoon C et.al, 2009), the final result on online purchasing behavior is not significant, maybe the interaction and relationship between the sellers and the buyers in e-commerce platforms virtual. As a result, power differences between these 2 parties are more invisible in the online relationships despite the power distance of the society. For masculinity, we assume that just because women are more active in e-commerce purchasing than men it is distinct that e-commerce is more female abundant (Stafford TF et.al, 2004), also 4 of 5 SCO countries in this study have high more than 50 as a masculinity index therefore the tests did not show any results for this

matter. Also, all of 5 SCO countries in this study are relatively long term oriented, all have more than 50 as a long term oriented index in Hofstede study, therefore the results did not show any significance, and in future we would like to see more difference between those countries that are more short term oriented comparing to these 5 SCO countries. At last, control variables, GDP per capita, and account ownership in financial institutions are significantly and positively related to online shopping adoption.

Table13: Summary of results

	Hypothesis	Remarks
H1	Online purchase is prevalent among young consumers of SCO member states.	Supported
H2	Online purchase is prevalent among male consumers of SCO member states.	Not supported
H3	Online purchase is prevalent among higher educated consumers of SCO Member states.	Supported
H4	Online purchase is prevalent among employed consumers of SCO member states.	Supported
H5	Online purchase is associated with higher income in SCO member states.	Supported
H6	Online purchase is prevalent among SCO member states with a lower PDI.	Not supported
H7	Online purchase is prevalent among SCO member states with higher IDV.	Supported
H8	Online purchase is prevalent among SCO member states with lower MAS.	Not supported
H9	Online purchase is prevalent among SCO member states with lower UAI.	Supported
H10	Online purchase is prevalent among long-term-oriented SCO member states.	Not supported
H11	Online purchase is prevalent among restraint SCO member states.	Supported

VI. Conclusion

As one of the most important economic region in Eurasia, Shanghai Cooperation Organization (SCO) is devoted to developing e-commerce in the region. But SCO member states vary in terms of e-commerce experience due to dissimilar economic situations and cultural differences. Do individual and cultural factors affect e-commerce in these countries and who are the main customers of online purchasing platforms in SCO countries? In this study, we attempted to answer this question by examining the factors that are affecting B2C e-commerce adoption in the SCO region. The main objective of this study is to integrate the demographic characteristics with Hofstede's cultural dimensions to determine the factors of e-commerce adoption among consumers in SCO member states.

This study derived data from multiple different sources, for individual demographic characteristics including age, gender, education, employment, and income we used The World Bank Global FINDEX as a source and in total this study analyzed 11227 face-to-face interviews with SCO populations from China, India, Kazakhstan, Pakistan and Russian Federation. For demographic characteristics including power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence we used data from Hofstede's site (www.hofstede-insights.com). Therefore, the results of this study show the importance of not just academic but also practical purposes.

First, the definition of e-commerce costumers in SCO is the complex combination in terms of demographics. E-commerce platforms are mostly used by those who are younger females with higher education and also in the workforce, who have more income than the others. This study shows that although SCO member states have signed the "Statement by the SCO Heads of State Council on Cooperation in the Digital Economy" assured to increase further adoption in the e-commerce field, the main part of the current e-commerce users are young individuals with higher education and incomes. E-commerce is widely used only among those who have the possibility and accessibility to the technology, and more importantly, who have paying abilities. Also, this study makes a remark that links the 2 different aspects and shows that not only individual characteristics are important to study e-commerce but also national culture factors. Therefore, we suggest the governments to design and make more policies to encourage online shoppers not just from individuals' perspectives but also from the national level by developing more favorable socio-values such as trust.

Overall, government officials in SCO countries need to extend the e-commerce customers varieties including especially those who have less income with low education in the population. There is a significant difference between e-commerce users and non-users that the officials should pay more attention to. Also on the country level, e-commerce development in SCO country is definitely connected to cultural values. National culture can't be changed in a short time; the government should seek to increase more favorable values in the whole society.

Although this study has certain contributions, there are some limitations. First, this study only collected data from 5 SCO countries; therefore there is a gap for future research including the other 3 SCO countries' data. Also, there is a room for more country-level controls. Moreover this research did not cover the physiological factors of the purchasing behaviors of the customers; therefore it can be extended to more behavioral studies.

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