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DEMOGRAPHIC AND CULTURAL FACTORS INFLUENCING THE ADOPTION OF B2C E-COMMERCE IN SCO REGION

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ABSTRACT

In the era of digitalization, e-commerce is providing exceptional opportunities to access domestic and international markets and is believed to be one of the main tools for poverty reduction and development acceleration. 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 in terms of e-commerce experience due to dissimilar economic situations and cultural differences. 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 customers in SCO member states. The result shows that in SCO countries, e-commerce is more spread amongst young females who are currently employed, and therefore have high education levels and incomes. From the perspective of the national culture, SCO member countries with high individualism, low uncertainty avoidance, and low indulgence level have more e-commerce customers than the other SCO member states.

KEYWORDS

E-Commerce, B2C, Developing Countries, Shanghai Cooperation Organization, SCO

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INTRODUCTION

Digitalization speed, substantial growth of internet penetration, and recently, the restrictions caused by COVID-19 has accelerated the e-commerce growth and according to United Nations Conference on Trade and Development (UNCTAD) news, 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. Since e-commerce is characterized as one of the main criteria for information technology revolution (Nanehkaran, 2013) and heart of Sustainable Development Goals, many researchers have developed e-commerce adoption and implementation frameworks 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 (Huseynov & Yıldırım, 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 (Boateng, Hinson, Heeks, & Molla, 2015). 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, 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 (Kimery, 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 (Ayob, 2021). 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 the 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 is a literature review, which is followed by a research method section that comprises used data and its sources. The fourth section is a result and discussion and the final section is a conclusion, followed by a list of references.

LITERATURE REVIEW

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.

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 2nd, 2019, was the prospect of economic partnership among SCO member states and the adoption of the trade and economic cooperation program until 2035. 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.

B2C e-commerce in SCO member states

One of the most reliable B2C e-commerce indicators is the UNCTAD B2C e-commerce index. Table 1 shows SCO member states ranking in UNCTAD B2C e-commerce index from 2016-2020:

Table 1. SCO member states' UNCTAD B2C e-commerce index

Member State	B2C e-commerce index				
	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

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. Overall the average ranking of SCO member states in the UNCTAD B2C 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/orpays 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

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 2000s researchers started analyzing the socio-demographic factors impacting the online purchase of consumers (Huseynov & Yıldırım, 2016) Based on researches it was concluded that age, education, gender, employment, and income have a significant influence on consumers' intention to purchase online (Afizah, Erlane & Jamaliah 2009; Beneke & Du, 2010).

• Age

According to James (Gentry & Mittelstaedt, 2017), retailers and marketers should consider different age groups, as they have different online purchasing behavior. McCloskey and Leppel (McCloskey & Leppel, 2010), reported that people born in 1930-1945 are not likely to use information technologies and therefore don't purchase online much. Moreover, Generation Y (1981-1996) use internet more than Generation X (1965-1980), but the percentage of online purchases is prevailing among Generation X (Lissitsa & Kol, 2016). As for Generation Z (1997-2012), Viera (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.

Hypothesis 1: Online purchase is prevalent among young consumers of SCO member states.

• Gender

Gender difference in e-commerce has been observed from diverse perspectives, such as the perceived risk of online behavior (Garbarino & Strahilevitz, 2004), and technology acceptance (Ali & Qing, 2007) 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, Peral & Arenas, 2014). In line with these studies, Slyke (Slyke et.al, 2010) 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 researchers and the majority of conclusions stated that women have lower trust and higher perceived risk towards online shopping (Gichang & Jialin, 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, Quyen & Rivas, 2016). 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

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. (Punj, 2011). Therefire some studies even concluded that education level influences the adoption, usage of e-commerce and the online shopping behavior. Delia found that education has an impact on online purchases regularity and how consumers perceive the products (Delia, 2012). 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. Thus far, according to Bradford and Whitacre, less educated people even avoid the internet because they assume that digital content is concentrating on better-educated consumers (Bradford & Whitacre, 2003).

Hypothesis 3: Online purchase is prevalent among higher educated consumers of SCO member states.

• Employment and income

A higher level of education leads to better employment opportunities and therefore has a positive effect on higher earnings (OECD, 2019). Moreover, income level is not only a significant factor for store shopping, but also a positive approach for e-commerce adoption and purchase (Ahasanul, Sadeghzadeh & Khatibi, 2011). Furthermore, online customers are not only employed, but also wealthier than traditional store consumers. Depending on earnings, customers with higher income prefer to save time and shop online, whereas customers with lower income prefer to save money (Punj, 2011).

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. As for now it has six cultural dimensions:

- 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 (Grazzini et al., 2020). As for SCO member states, China and India have a high power distance index, which affects the consumer behavior and leads to less trust in online shopping (Rinne, Steel & Fairweather, 2013).

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. Despite the fact that in collectivist cultures people have higher trust to e-platforms, individualist country citizens are more likely to try various e-platforms and to switch between them (Hofstede & Minkov, 2010).

Hypothesis 7: 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 aninfluence on society's roles or not. 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. E-commerce is preferred by feminine society, and citizens of a masculine culture have higher user-friendliness of the platform (Pratesi et.al., 2021).

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. Countries with high UAI prefer to constrain uncertainty by various rules and codes, and are often characterized as less prone to accept risks (Pratesi 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 (Hwang & Lee, 2012).

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. Therefore, long-term-oriented cultures make long-lasting businesses only with trusted partners. Researchers found that collectivism and long-term orientation are positively correlated with trust disposition and help to build trust in e-commerce (Hallikainen & Laukkanen, 2018).

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. According to Yavuz's study, 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 (Yavuz, 2014). 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.

RESEARCH METHOD

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

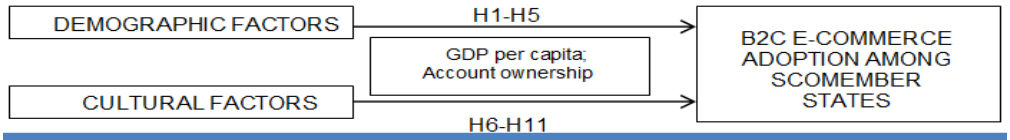

Figure 1. Research model

The World Bank Global FINDEX data is currently the 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. 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 did not mention their age, 32 education level and 161 respondents' online purchase data are missing.

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. Plus 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. Definition 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, whereas 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 per capita	Gross domestic production divided by population.	World bank

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 only relying on studies by Seyil and Dadabaev, we assume that Kyrgyzstan, Tajikistan and Uzbekistan are masculine collectivist countries with different cultural dimensions (Seyil, 2013; Dadabaev T, 2004). 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.

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 per capita (USD mln)	Internet penetration rate (%)	Global cyber security index	Total population (mln)
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 per capita (USD mln)		1			
Internet penetration rate (%)		.903*	1		
Global cyber security index		.574*	.730	1	
Total population (mln)		-.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 4, 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 11227 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. Therefore, the correlation analysis is 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	Poorest 20	-0.1247	-0.0181	0.0671	0.1622	-0.1047	-0.0965	1.0000							
8	Second 20	-0.0795	-0.0254	0.0109	0.0977	-0.0562	-0.0685	-0.2404	1.0000						
9	Middle 20	-0.0103	-0.0129	0.0041	0.0133	-0.0051	-0.0134	-0.2446	-0.2372	1.0000					
10	Fourth 20	0.0570	0.0026	-0.0125	-0.0722	0.0624	0.0192	-0.2525	-0.2449	-0.2492	1.0000				
11	Richest 20	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	Has an account at financial 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	GDP per capita	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 5 (.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, 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).

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

SCO member states	Power distance index	Indivi--dualism	Mascu--linity	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. 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	Poorest 20	-0.1247	0.0671	-0.0181	0.1622	0.1047	-0.0965	-0.341	1.000												
9	Second 20	-0.0795	0.0109	-0.0254	0.0977	-0.0562	-0.0685	-0.0246	-0.2404	1.000											
10	Middle 20	-0.0103	0.0041	-0.0129	0.0133	-0.0051	-0.0134	-0.0059	-0.2446	-0.2372	1.000										
11	Fourth 20	0.0570	-0.0125	0.0026	-0.0722	0.0624	0.0192	0.0221	-0.2525	-0.2449	-0.2492	1.000									
12	Richest 20	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 avoid	-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 orient.	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	Has an 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 per capita	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

RESULT AND DISCUSSION

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 per capita 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.

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 analyses, 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 obs F (5, 11060)	= =	11,066 1031.38	
Model Residual	241.187672 1293.53355	2 11,063	120.593836 .116924301	Prob> F R=squared	= =	0.0000 0.1572	
Total	1534.72122	11,065	.138700517	Adj R squared Root MSE	= =	0.1570 .34194	
Purchased online		Coef.	Std. Err.	t	P > | t |	[95% Conf.	Interval]
Has an account at financial institution		.1753525	.0070598	24.84	0.000	.161514	.189191
GDP per capita		.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

Table 10. Regression analysis of demographic variables						
Source	SS	df	MS	Number of obs F (5, 11060)	= =	11,042 451.53
Model Residual	475.060579 1054.9924	11 11,030	43.1873253 096547543	Prob> F R=squared	= =	0.0000 0.3105

Total	1530.05298	11,041	.138579203	Adj R 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
Second 20		.0173501	.0094741	1.83	0.067	-.0012208	.0359211
Middle 20		.0587375	.0094624	6.21	0.000	.0401895	.0772856
Fourth 20		.0980209	.0094282	10.40	0.000	.0795399	.1165019
Richest 20		.1467252	.009541	15.38	0.000	.1280231	.1654272
Has an account at finacial institution		.137837	.006641	20.76	0.000	.1248195	.1508545
GDP per capita		.0000351	7.93e-07	44.21	0.000	.0000335	.0000366
_CONS		.0543776	.0117373	4.63	0.000	.0313703	.0773849

As for individual demographic factors, Table 10 and Table 12 show that the 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. 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, Jiménez, & Martín, 2011). In some platforms, female customers' quantities have already exceeded the male customers' quantities (Stafford, Turan, & Raisinghani, 2004).

Table 11. Regression analysis of cultural variables

Source	SS	df	MS	Number of obs F (5, 11060)	= =	11,066 457.37	
Model Residual	262.958855 1271.76236	5 11.060	52.591771 114987555	Prob> F R=squared	= =	0.0000 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 at fnancial institution		.2063323	.0076082	27.12	0.000	.1914188	.2212458
GDP per capita		.0000355	1.64e-06	21.60	0.000	.0000322	.0000387
_CONS		.0248185	.0139067	1.78	0.074	-.0024411	.0520782

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 (Zhao, 2011). On the other hand, Hypotheses 6, 8, and 10 did not match the initial expectations. The results show that 3 of the 6 cultural dimensions including power distance, masculinity, and long-term orientation does not show the relationship in

e-commerce purchasing behavior between SCO countries. These variables show omitted results because they have collinearity with other variables, which means they cannot be considered as independent variables in this study.

Table 12. Overall regression analysis

Source	SS	df	MS	Number of obs F (14, 11027)	=	11,042 399.40	
Model Residual	514.811458 1015.24152	14 11.027	.772247 2068697	Prob> F R=squared	= =	0.0000 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
Second 20		.0227114	.009306	2.44	0.015	.0044699	.0409528
Middle 20		.0597245	.0092899	6.43	0.000	.0415147	.0779343
Fourth 20		.0927008	.0092592	10.01	0.000	.0745511	.1108504
Richest 20		.1317881	.0093907	14.03	0.000	.1133806	.1501956
Power distance 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 at financial institution		.1466091	.0071126	20.61	0.000	.1326672	.160551
GDP per capita		.0000495	1.52e-06	32.62	0.000	.000466	.0000525
_CONS		.2731722	.0159773	17.10	0.000	.2418538	.3044905

Previous studies showed that the power distance index does show the level of trust in society, 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 (Kim, Urunov, & Kim, 2016). 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, the researchers assume that just because women are more active in e-commerce purchasing than men it is distinct that e-commerce is more female abundant, 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.

Table 13. 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

CONCLUSION

As one of the most important economic region in Eurasia, 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 Russia. 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 a 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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