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Original Research Article

Investigating the Impact of Imposing International Financial Sanctions on International Risk Sharing in Developing Countries using Propensity Score Matching Approach

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The present study investigated the effect of imposing international financial sanctions on international risk sharing in developing countries during 2011-2022 using the propensity score matching (PSM) approach. International risk sharing refers to the processes in which countries with different income prospects share the risk of income fluctuations with one another by conducting commercial and financial transactions internationally. Therefore, their income and consumption no longer depend solely on domestic production, but also depend on the production of other countries (countries that own their assets). Since, international capital flows are the main tools for international risk sharing. Imposing international financial sanctions on a country reduces international capital flows and therefore reduces international risk sharing in that country. As the results showed, the impact of financial sanctions on international risk sharing has been negative and significant because the measure of the international risk sharing index in countries that were not subject to sanctions (control group) was 0.5877 and in countries that were subject to sanctions (treatment group) was 0.2431. Therefore, imposing international financial sanctions has reduced risk sharing in developing countries.

Keywords: International Risk Sharing, International Financial Sanctions, Developing Countries, Propensity Score Matching Approach
JEL Classification : F39, F49, G20, C21

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1 Introduction

As globalization and the international integration of financial markets expand, countries can secure their income and consumption against production fluctuations by buying and selling different assets internationally. In economic literature, this situation is called international risk sharing. Risk sharing is about maximization of intertemporal utility in which individuals try to lower the impact of revenue shocks on their consumption through financial transactions. Risk sharing can be done using national (domestic) or international financial transactions. At the national (domestic) level, people reduce the effect of income shocks on consumption by transacting financial assets together. Similarly, a country expands financial transactions with other countries to reduce the effect of income impulses on its consumption. Therefore, international risk sharing refers to the processes in which countries with different income prospects share the risk of income fluctuations with each other by conducting commercial and financial transactions at the international level (Nguyen, 2014: 1).

According to the international business cycles theory, increasing financial integration in a country should increase the international risk sharing in that country (Flood, Marion & Matsumoto, 2012). Equivalently, it can be concluded that the lower the country's financial connection with the rest of the world, the lower the international risk sharing of that country. Reducing risk sharing makes people unable to smooth their consumption flow over time. Therefore, production fluctuations cause fluctuations in their consumption and will reduce their utility. This is why international organizations and countries impose severe sanctions against that country to force it to change its behavior.

In recent decades, international economic sanctions have been employed to change and control governments' behavior instead of military intervention and starting a war. For example, as of March 12, 2019, according to the National Defense Powers Act approved by the US Congress, foreign banks were prohibited from communicating with the US financial system if they cooperated with the Central Bank and other financial institutions of Iran (Manzoor & Mostafapour, 2013). Although these sanctions are applied to change the governments' behaviors, they reduce the citizens' welfare.

In addition to Iran, there are other countries that are under international financial sanctions. According to the US Department of Treasury, the governments of Bosnia and Herzegovina, Belarus, Myanmar, Central African Republic, Cuba, Russia, People's Republic of the Congo, Somalia, Hong Kong, Lebanon, Ethiopia, Libya, Iraq, Nicaragua, Iran, North Korea, Mali,

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Sudan, South Sudan, Yemen and Zimbabwe in 2021 are under the financial sanctions of the United States and the EU[1].

Considering that Iran has been exposed to severe international financial sanctions in the last few decades; Investigating the effect of imposing international financial sanctions against a country on the welfare of the residents of that country is very important. In fact, the main research question is as follows:

Does imposing international financial sanctions against a country reduce the welfare of the residents of that country?

In order to answer the question, the impact of imposing international financial sanctions on international risk sharing in developing countries is investigated using the propensity score matching (PSM) approach. International financial sanctions are the treatment variable, and international risk sharing is the response variable. The data of 88 developing countries during 2011-2022 was used for the estimation[2].

The remainder of the paper is structured as follow: in the second section, general theoretical framework of the study is introduced. In the third section, the literature review is discussed. The fourth section is about research methodology. In the fifth section, the statistical specification of the model is presented. The sixth section includes model estimation and analysis of the results. Finally, the conclusion is presented in the seventh section.

2 Theoretical Framework

According to Baxter (2012), first, a general equilibrium model of the world economy was developed in the condition of perfect markets to construct an index to measure international risk sharing. Every country seeks to maximize its utility over time. In the literature of risk sharing, a utility function with fixed and temporally separable and summable relative risk aversion is usually used. The rate of risk aversion σ and the discount factor β are assumed to be constant between countries.

$$U_i = E_0 \sum_{t=0}^{\infty} \beta^t \frac{{c_{it}}^{1-\sigma}}{1-\sigma} \quad (1)$$

where U_i is the utility of the representative consumer in country i, c_{it} is period t consumption of the representative consumer in country i, and E_t is

[1] European Union

[2] The complete list of countries investigated in the study (the treatment group and control group) is provided in the appendix section.

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the expectation operator. It is necessary to have a social welfare function for the world to obtain an optimal allocation of consumption between countries. By considering a specific weight for the utility of each country internationally, a social welfare function for the world can be obtained.

$$W_t = \sum_{i=1}^{I} \theta_i U_{it} \quad (2)$$

where W_t is the social welfare function of the world and θ_i is the country i's utility weight at the international level. The world resources limitation is described as Equation (3).

$$\sum_{i=1}^{I} \eta_i c_{it} \leq \sum_{i=1}^{I} \eta_i y_{it} = f(\varsigma_t) \quad (3)$$

where η_i shows the population of country i, ς_t is the exogenous shocks in period t and y_{it} is the income of the representative consumer in period t in country i. The production process can be considered in any way. It is only assumed that the production process is inherently associated with a random component. If λ_t is considered as the current value coefficient for the world resources limitation in the maximization of the global welfare function, the first order condition (FOC) for determining the optimum consumption for each country in period t is as equation (4).

$$\eta_i \lambda_t = \frac{\theta_i du(c_{it})}{dc_{it}} \quad (4)$$

Equation (4) expresses the FOC for full international risk sharing. The ratio of FOC in period t for countries i and j can be an indicator of international risk sharing between the two countries.

$$\frac{\eta_i}{\eta_j} = \frac{\theta_i {c_{it}}^{-\sigma}}{\theta_j {c_{jt}}^{-\sigma}} \quad (5)$$

By taking the logarithm of both sides of equation (5), equation (6) is as follows:

$$\log\left(\frac{{c_{it}}^{-\sigma}}{{c_{jt}}^{-\sigma}}\right) = \log\left(\frac{\eta_i}{\eta_j}\right) - \log\left(\frac{\theta_i}{\theta_j}\right) \quad (6)$$

Due to the uncertainty of each country's utility weight in the world social welfare function and the indeterminacy of the total consumption time series, the first order difference equation is obtained via equation (6). If it is assumed

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that the population ratio of the countries and the weight ratio of their utility in the global welfare function are constant over time, then by taking the first order difference via Equation (6), equation (7) is obtained.

$$\log c_{it+k} - \log c_{it} = \log c_{jt+k} - \log c_{jt} \quad (7)$$

In the conditions of international high risk sharing, even if the countries have different production shocks, the consumption growth of the two countries should be highly correlated because the residents of each country optimally diversify their asset portfolio by buying different domestic and foreign assets and sharing the risk of their production internationally

Similarly, under full risk sharing conditions, the consumption growth of each country should not be correlated with its income growth (Lewis, 1999). Therefore, the degree of correlation between the consumption growth of a country and its income growth in a period can be considered a measure of the country's degree of international risk sharing in the given period. Thus, the higher the correlation of a country's consumption growth with its income growth, the lower its international risk sharing.

So far, the issue of how to measure international risk sharing has been discussed. However, what factors effectively increase a country's international risk sharing? As mentioned, the residents of a country share the risk of production fluctuation internationally by buying and selling international assets. International capital flows are the main channels of international risk sharing. Any factor that increases international capital flows to a country also improves its international risk sharing.

In the literature, the factors affecting capital flows to developing countries include push and pull factors of capital flows. Countries' expected return, risk, and risk preferences play a fundamental role in determining capital flows (Hannan, 2018). Factors discouraging capital flows to developing countries include external conditions related to global liquidity supply (liquidity supply-side factors). These factors are global relative risk aversion, global price growth, and interest rates in developed countries (Reinhart, Reinhart & Trebesch, 2016). Moreover, the pull factors of capital flows to the developing country are internal characteristics (demand side factors) that affect the risk and return of investors. Pull factors of capital flows depend on the primary macroeconomic conditions and the policies of the developing country requesting capital (Fernández-Arias & Montiel, 1996). By examining various empirical studies (Mohammadzadeh Asal, Sabri Baghai & Modirosta (2010), Vo (2018)), the inflation rate, the measure of the real interest rate, the amount

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of foreign trade, and the level of financial development of a country are considered pull factors of capital flows to the developing country.

This study investigates the effect of financial sanctions on the level of international risk sharing in developing countries using the PSM approach. As aforementioned, because capital flows are the main channels of international risk sharing, the pull factors of capital flows to developing countries are considered factors affecting international risk sharing.

2.1 Factors Affecting International Risk Sharing

According to the topics raised in the theoretical literature section of the research, the factors affecting the level of international risk sharing in developing countries are as follows.

Inflation Rate: The higher the inflation rate in a country, the less capital flows into that country (Vo, 2018). Therefore, risk sharing will be less in that country.

Real Interest Rate: The interest rate difference between developing and developed countries is one of the main causes of capital flow to developing countries. Therefore, an increase in the real interest rate in a country increases international risk sharing in that country (Nier, Sedik & Mondino, 2014).

Foreign Trade: increasing a country's foreign trade increases international risk sharing of that country in two ways. On the one hand, the increase in cross-border transfers of goods and services and the increase in foreign trade directly increase the international risk sharing; on the other hand, the higher foreign trade of a country, the greater the ability of that country to attract capital flows internationally; thus, that country's risk sharing will be higher (Li & Resnick, 2003).

Financial development: Financial development of a country is directly related to international risk sharing of that country: the higher the financial development level of a country, the more capital flows into that country. Increased capital flows to a country also promote international risk sharing (Alfaro, Kalemli-Ozcan & Volosovych, 2008).

3 Review of Literature

In the last two decades, international financial sanctions have been one of the most influential factors in many developing countries. Many domestic studies

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have addressed the effect of financial sanctions on macroeconomic variables in developing countries. Several studies have investigated the calculation method and factors affecting international risk sharing. Table (1) lists the most critical studies related to the research subject.

Table 1
studies conducted related to the research subject area

Authors (year)	Research time and place	Research models	Findings
Torki & Mazaheri (2022)	Iran in the period 2004-2020	The Bayesian vector regression model (BVAR)	The effect of the shock on the variable of fixed investments is negative and decreasing
Oliveira (2019)	100 developing and developed countries in the period 1995-2016	Panel data	The degree of openness of the capital account has a positive and significant effect on international consumption risk sharing.
Mimir (2016)	Eurozone countries, Group of Seven countries, and Economic Development and Cooperation Organization countries in the period 2000-2009	Using AR(1) and OLS	The degree of risk sharing has a positive relationship with the degree of financial integration and a negative relationship with financial development.
Flood, Marion & Matsumoto (2012)	77 countries in the period 1964-2004	Development of a well-being index	Risk sharing has increased during the era of globalization.
Tayebi & Sadeghi (2017)	Iran in the period 1981-2014	Autoregressive distributed lag (ARDL)	Sanctions have had a direct and significant effect on the inflation rate through changes in the exchange rate and government budget deficit.
Azarbaijani, Tayebi, & Safa Dargiri (2015)	Iran and its fourteen trading partners during the period 2000-2011	Gravity model	The effect of sanctions has been negative and significant.

Source: Research findings

Summarily, the effect of financial sanctions on a country's international risk sharing has not been investigated in any of previous studies. In the past two decades, the issue of sanctions has been emphasized significantly in economic literature, most of which have examined the effect of financial sanctions on macroeconomic variables such as economic growth and inflation. Nevertheless, none of these studies have investigated the effect of financial sanctions on the country's international risk sharing.

The present study is significant because international risk sharing is a welfare-oriented indicator of the social utility function. This research seeks to

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answer the following question: Do international financial sanctions reduce welfare of a country?

4 Research Method

Matching observations is a method of estimating the causal effects of policy interventions. This method has a treatment variable (W), the policy intervention. If the intended observation is exposed to the mentioned policy, the treatment variable takes on value 1 and, otherwise, value 0. The aim is to evaluate the effect of changes in treatment status (W) on the response variable (Y). Generally, this technique is employed when there are two groups of observations. The first group, the treatment group, voluntarily or involuntarily, is exposed to an interventionist policy. The second group, the control group, is not affected by this policy at all.

The response variable for the ith observation has two potential states $Y_i(1)$ and $Y_i(0)$: the first is the amount of response in the participation condition of the policy program, and the second is the amount of response in the non-participation condition of the program. Both response variables do not occur for the same observation; only one of the outcomes happens, and the second outcome is only an abstract concept called counterfactual.

$$Y_i = \begin{cases} Y_i(0), & if \;\; W_i = 0 \\ Y_i(1), & if \;\; W_i = 1 \end{cases}$$

The effect of the program on the ith observation is determined by equation (8).

$$\tau_i = Y_i(1) - Y_i(0) \tag{8}$$

As aforementioned, only one of the potential outcomes $Y_i(1)$ and $Y_i(0)$ is visible for the ith unit at a particular time. Not an individual or a country can participate and not participate in the program simultaneously. One of these states is visible to each individual, and the other is an abstract value. Therefore, researchers use the average treatment effects (ATE) to estimate the effect of a program. Two groups of people are selected, one group is exposed to treatment, and the second group is not exposed to treatment. The mean difference of the response variable in the first and second groups is calculated as the ATE.

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$$\tau_{ATE} = E(\tau_i) = E[Y_i(1) - Y_i(0)] \quad (9)$$

For the ATE to correctly estimate the treatment effect, individuals must be randomly distributed between the treatment and control groups. If individuals are not randomly divided into treatment and control groups, other variables affecting the response variable should be identified and their effects removed; that is, the treatment and control groups are selected so that these variables (explanatory variables affecting the response variable) are similar in them (Lee, 2013).

$$\mathrm{E}(Y(1)|\mathrm{X}, \mathrm{W} = 1) - \mathrm{E}(\mathrm{Y}(0)|\mathrm{X}, \mathrm{W} = 0) = \mathrm{E}(Y(1)|\mathrm{X}, \mathrm{W} = 0) - \mathrm{E}(\mathrm{Y}(0)|\mathrm{X}, \mathrm{W} = 0) = \mathrm{E}(Y(1)|\mathrm{X}) - \mathrm{E}(\mathrm{Y}(0)|\mathrm{X})$$

Assuming that the participation in the program is independent of the response variable (Rosenbaum & Rubin, 1983), and for each given x, the probability of participating in the program is in the interval (0,1) (Heckman, Lalonde & Smith., 1999), the treatment effect is calculated as equation (10).

$$\tau\,(\mathrm{X}) = \mathrm{E}[\mathrm{Y}(1) - \mathrm{Y}(0)|\mathrm{X} = \mathrm{x}] = \mathrm{E}[\mathrm{Y}|\mathrm{W} = 1, \mathrm{X} = \mathrm{x}] - \mathrm{E}[\mathrm{Y}|\mathrm{W} = 0, \mathrm{X} = \mathrm{x}] \quad (10)$$

A propensity score (PS) can be employed to compare treatment and control groups, instead of using x. If the assumption of conditional independence is established (that the participation in the program is independent of the response variable) and the overlap assumption (for any given x, the probability of participating in the program is between 0 and 1), the PSM estimator for estimating the ATE is as equation (11).

$$\tau_{ATT}^{psm} = E_{P(X_i)|\mathrm{W}_i=1}\{\mathrm{E}[\mathrm{Y}_i(1)|\mathrm{W}_i = 1, P(X_i)] - \mathrm{E}[\mathrm{Y}_i(0)|\mathrm{W}_i = 1, P(X_i)]\} \quad (11)$$

To estimate the effects of the program using the PSM estimator, the PS equation $P(\mathrm{W}_i = 1|X_i) = P(X_i)$ must be estimated. The estimation model and explanatory variables should be selected to calculate this equation. Logit and Probit models are usually employed to perform this type of estimation.

$$P(\mathrm{W}_i = 1|X_i) = E[h(X_i)]$$

Where $E(.)$is the cumulative normal or Logit distribution and $h(X_i)$ is an exponential function including all variables that determine the probability of $P(\mathrm{W}_i = 1)$. After estimating the probability value of each observation, the Nearest Neighbor Index is used to select one individual from the control group and one individual from the program group so that they have the nearest PS to participate in the program. If it is assumed that the participation probability of

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the ith individual from the program group is P_i and the probability of the participation of the jth individual from the control group is P_j, then the nearest neighbor (NN) of the ith individual is determined by the following equation.

$$C(i) = \left\{ P_j \left| \min_j |P_i - P_j| \right. \right\}$$

Then an individual from the control group with the participation probability P_j will be the perfect match for the ith individual (Keshavarz Haddad, 2017).

5 Statistical Model Specification

This research investigates the effect of financial sanctions on international risk sharing in developing countries over the period 2011-2020 using the PSM approach. In the PSM approach, the effect of a treatment variable at a point in time is compared in many sections. Therefore, this study calculated international risk sharing in the given period and considered as a response variable for each section (country). For other variables, the average of their values in the given period is regarded as the value of that variable.

International risk sharing is considered a response variable, and the imposition of financial sanctions in a country in the given period is considered a treatment variable. As stated in the research method section, because the imposition of financial sanctions in developing countries was not random, other variables affecting international risk sharing were added to the model so that selection of the countries should remove the effects of these variables in control and treatment groups (based on these variables). Explanatory variables include inflation rate, real interest rate, foreign trade, and the country's financial development level. The following paragraphs describe the method of measuring each of the variables, and the source of extracted data for these variables is described.

A country's international risk sharing (rs): the higher the correlation between a country's consumption growth and income growth, the lower the country's risk sharing. Therefore, this index is defined as follows:

$$rs_i = 1 - \left| \rho_{c,y}^{i} \right|$$

where $\rho_{c,y}^{i}$ is the correlation between per capita consumption growth and per capita production growth in country i. The statistics related to the growth

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of production per capita and the growth of consumption per capita of the countries were extracted from the World Bank website[1].

Financial sanctions status (fs): The sanctions variable is a zero-one variable. The value of this variable is 1 for the countries under financial sanctions in the considered period and 0 for other countries.

Real interest rate (rir): The higher the interest rate in a country, the higher the level of international risk sharing in that country. Real interest rate statistics of countries are also extracted from the World Bank website.

Foreign trade (ft): as discussed, the increase in a country's foreign trade level increases international risk sharing of that country. The country's total exports and imports ratio to GDP is considered an indicator of the country's foreign trade volume. Statistics related to countries' foreign trade volume are also extracted from the World Bank website.

Financial development (fd): The higher the level of financial development of a country, the higher the level of international risk sharing of that country. The financial development index is employed to compare countries' financial development levels. This index determines a value between 0 and 1 for that country based on institutions' and financial markets' depth, accessibility, and efficiency. The closer this value is to 1, the higher the country's financial development level (Svirydzenka, 2016). The financial development index is obtained from the indices of financial institutions' development and financial markets development. The development of financial institutions and the development of financial markets indices are also obtained from the depth, accessibility, and efficiency of financial markets and financial institutions indices. The statistics of the financial development index of the countries were extracted from the website of the International Monetary Fund (IMF)[2].

6 Model estimation and analysis of the results

As aforementioned, in this research, the PSM approach was used to investigate the effect of international financial sanctions on international risk sharing. In this method, the PS is estimated as a parameter so that the model's explanatory variables make multiple matching pairs to match the effects between the treatment group (countries subject to sanctions) and the control group (countries not subject to sanctions). Table (2) reports the results of PS estimation for countries.

[1] https://www.worldbank.org
[2] https://data.imf.org

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Table 2
The results of estimating countries' PS

Variable	Statistic	SD	Z	$P > \|z\|$
inf	*0.0842*	*0.0451*	*1.86*	*0.052*
rir	*-0.0976*	*0.0493*	*-1.98*	*0.048*
ft	*-0.0024*	*0.0062*	*-0.040*	*0.691*
fd	*-2.9318*	*1.6205*	*-1.81*	*0.070*
$\_cons$	*-0.0759*	*0.7550*	*-0.10*	*0.920*

Source: Research findings

Table (2) shows the results of propensity score estimation based on the explanatory variables affecting the response variable. The estimated propensity score is used to match observations (countries). In this table, the significance of the results is not very important. The results of this table are only used to estimate the model and obtain the results of Table (3).

Propensity score estimation is used to match observations (countries).

Table 3
The effect of financial sanctions on international risk sharing

Sample	Treatment	Control	Difference	SD	t *-statistic*
Not matched	*0.2183*	*0.3370*	*-0.0386*	*0.0873*	*-0.44*
ATT	*0.2431*	*0.5877*	*-0.3445*	*0.1434*	*-2.40*

Source: Research findings

Table (3) displays the results of estimating the effect of financial sanctions on international risk sharing in developing countries using the PMS approach with Kernel weights. According to the ATT estimator, the difference of the response variable in the countries subject to sanctions and those not is -0.3445. Since the absolute value of the t-statistic for this estimator is greater than 1.96, this estimate is significant at the 5% error level; the imposition of international financial sanctions has reduced the international risk sharing in developing countries.

The balancing test must be performed on the explanatory variables affecting the response variable to ensure the assumption of conditional independence. The test aims to check the correctness of the assumption of independence of the explanatory variables (characteristics of the countries) from the treatment variable (being exposed to sanctions).

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Table 4
The balancing test results

Variables	Mean			t-statistic	
	Treatment group	Control group	Bias	t	$P > \|t\|$
inf	*5.5862*	*4.8557*	*4.9*	*0.52*	*0.6*
rir	*5.241*	*5.9278*	*-10.1*	*-0.42*	*0.677*
ft	*69.808*	*80.195*	*-32.7*	*-1.26*	*0.222*
fd	*0.1885*	*0.1382*	*36.7*	*1.11*	*0.280*

Source: Research findings

Table (4) reports the balancing test results on the explanatory variables affecting the response variable. According to the results obtained from the balancing test, all the explanatory variables are well matched between the treatment and control groups because the probability value of their t-statistic is greater than 0.05.

In addition to the balancing test, the presence of a common support in the PS values should also be tested to ensure the estimation results. This test aims to check the existence of sufficient similarity in the common characteristics between the countries of the treatment group and the countries of the control group. If there is not enough similarity, the comparison will not make sense. The unfavorable condition of this test (similarity between two groups is not enough) is when the density profile of $P_i s$ in the treatment group tends to value 1, and in the control group to value 0 (Keshavarz Haddad, 2017).

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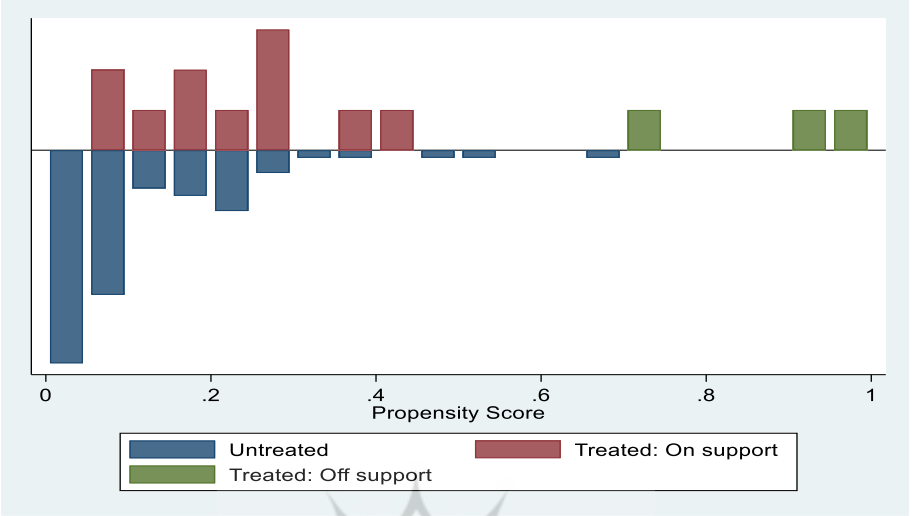

Figure 1. Evaluating common support
Source: Research findings

Figure (1) presents the test result of the presence of common support in the PS values of the treatment and control groups. As the graph shows, the probability density function (PDF) of the PS of the treatment and control groups has common support after the estimation; that is, the comparison made in the estimation is valid.

7 Conclusion

In this research, the effect of imposing international financial sanctions on international risk sharing in developing countries over the period 2011-2022 was investigated using the PSM approach. Risk sharing refers to an intertemporal utility maximization process in which economic agents try to reduce the effect of income shocks on consumption directly in an insurance contract or through buying and selling financial assets. Increasing financial integration in a country increases the international risk sharing level in that country. As a result, the lower the country's financial connection with the rest of the world, the lower the international risk sharing of that country. Because the international risk sharing is derived from the maximization of the inter-temporal utility of countries, therefore, a decrease in the international risk sharing of a country means a decrease in the utility of that country.

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As the results show, the effect of imposing financial sanctions on international risk sharing was negative and significant. Because, the measure of the international risk sharing index in countries that were not subject to sanctions (control group) was 0.5877 and in countries that were subject to sanctions (treatment group) was 0.2431.

The main question of the research was whether the imposition of international financial sanctions on a country will reduce the welfare of the residents of that country. To answer the question, it can be state that imposing international financial sanctions has reduced risk sharing in developing countries. Since, the international risk sharing index is welfare-oriented, it can be concluded that the imposition of financial sanctions against some developing countries significantly reduced the welfare of their residents.

According to the research results, it is recommended that economic policymakers strengthen regional cooperation, especially trade agreements, to deal with the effect of international financial sanctions on international risk sharing and the country's prosperity. In addition, constructing new financial paths at the international level can be promising.

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Appendix

The countries of the control group (countries that have not been sanctioned) are as follows: Albania, Algeria, Angola, Armenia, Bahamas, Bahrain, Bangladesh, Benin, Bhutan, Bolivia, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Cape Verde, Chile, China, Colombia, Costa Rica, Ivory Coast, Croatia, Dominican Republic, Egypt, Swatini, Gambia, Georgia, Guatemala, Haiti, Honduras, Hungary, India, Indonesia, Jamaica, Jordan, Kenya, Kuwait, Kyrgyzstan, Lesotho, Madagascar, Malaysia, Maldives, Mauritania, Mauritius, Mexico, Mongolia, Mozambique, Namibia, Niger, Nigeria, North Macedonia, Oman, Pakistan, Panama, Paraguay, Peru, Philippines, Rwanda, Russian Federation, Romania, Senegal, Serbia, Seychelles, Sierra Leone, Salmon Islands, South Africa, Sri Lanka, Tanzania, East Timor, Togo, Tonga, Uganda, Uruguay, Vanuatu, and Vietnam.

The countries of the treatment group (countries that have been subjected to international sanctions) are as follows: Belarus, Bosnia and Herzegovina, Burundi, People's Republic of the Congo, Guinea-Bissau, Iran, Lebanon, Mali, Moldova, Myanmar, Nicaragua, Russian Federation and South Sudan.

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