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The role of social safety nets for poverty reduction in the Kingdom of Saudi Arabia

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ABSTRACT

The purpose of this research paper is to assess the potential role of social safety nets (SSNs) in poverty reduction in Saudi Arabia, which has received less attention in the empirical literature. Specifically, the paper explores the influence of the "Unemployment Insurance Law (SANED)" on poverty reduction. Credible sources provide quarterly data for the period from 2016 to 2023. The study used the "Autoregressive Distributed Lag Modeling (ARDL)" approach for assessing the short-run and long-run impacts of SANED on poverty reduction. Our results show that the SANED program has significantly contributed to poverty reduction in Saudi Arabia, and its influence is evident both in the short- and the long-run. The estimated model also indicated that higher unemployment rates lead to higher poverty rates, while higher government spending and greater trade openness effectively contributed to reducing poverty burdens. Our results carry significant implications, providing valuable insights to effectively address poverty and enhance economic stability in Saudi Arabia. Therefore, we expect the current study's results to significantly benefit Saudi Arabia's policymakers. Consequently, they could formulate and implement appropriate policies to effectively address the problem of poverty.

Contribution/Originality: This research paper has explored the usefulness of the SANED program on poverty reduction, which is indeed an interesting but least researched area in the available empirical literature.

1. INTRODUCTION

The social safety nets (SSNs) phenomenon has received significant attention from policymakers and international organizations during the last few decades due to their dominant role in poverty reduction programs. According to Paitoonpong, Abe, and Puopongsakorn (2008) the SSNs analogy is derived from the "high-wire walkers who are protected by a safety net if they fall". The SSNs prevent "any walker who falls—unexpectedly or not—from hitting the floor and incurring catastrophic injuries," as pointed out by Paitoonpong et al. (2008). Conning and Kevane (2002) endorsed that the SSNs programs redistributed resources towards the less privileged, reducing poverty and enhancing economic growth. The SSN programs are effective in several ways, as they increase food consumption and further have a positive direct impact on the accumulation of assets (Ralston, Andrews, & Hsiao, 2017). The SSNs programs are generally aimed at addressing three main issues in economies, including poverty alleviation, institutional reforms, and increasing the acceptability of the adjustment programs as endorsed by Paitoonpong et al. (2008).

It is known that SSNs in many countries of the world depend on a set of different axes and policies that each country follows according to the level of income and the percentage and nature of poverty in each society. Poverty eradication, which is one of the main objectives of SNNs, is also globally recognized as the first goal of the Sustainable Development Goals (SDG-1), as pointed out by Dugarova (2016). It implies that government authorities all over the world are forced to acknowledge their responsibility of reducing poverty using the SNN networks and programs that support the poor class of society through multiple channels. It depends on the type, composition, and level of poverty in each country.

The Kingdom of Saudi Arabia (KSA, hereafter), a resource-rich economy located in the "Middle East Region" and an active member of the "Gulf Cooperation Council," similar to other economies, has made significant efforts to address economic challenges, including poverty. Despite being the largest donor of "Official Development Assistance" (ODA) and having the largest economy in the Arab region, KSA is facing some challenges, including poverty and a high unemployment rate (Alsayyad & Nawar, 2017). Several organizations in KSA, including the "Social Development Bank," "Human Resources Development Fund," and the "Ministry of Social Development," are actively undertaking initiatives to address poverty through targeted financial support programs. In 2014, the Saudi authorities approved and launched the SANED program, with the objective to protect the Saudi nationals working in the private sector against the risk of being unemployed due to circumstances beyond their control. The program offers temporary income support, provides access to job-search assistance and training, and ensures financial stability during periods of job loss while helping individuals re-enter the workforce. The SANED program has received considerable recognition from all stakeholders due to its positive consequences on the labor market. The policymakers of KSA have taken several other steps in addition to the SANED program over the years by launching welfare programs to address the issue of poverty (Singh, Singh, Alam, & Agrawal, 2022). However, poverty still exists in KSA, and some researchers have tried to identify its contributing factors. For instance, unemployment, family size, and single breadwinners are held responsible for the existing poverty (Al Lily & Waibel, 2021). However, the effectiveness of the SANED program is yet to be explored due to the lack of academic research on the role of SSNs in alleviating poverty in KSA. In other words, the available literature has not paid attention to quantitatively estimating the influence of SANED program on poverty reduction. Amid this backdrop, this research paper aims to analyze the current situation of the SANED program and assess its explicit influence on poverty reduction in KSA.

The present study contributes to literature in a couple of ways. First, this study looks at the connections between SSNs and reducing poverty. This is still an area that needs more research, at least on the empirical side, since not much has been done in KSA. Secondly, the current study focuses on the recently launched SANED program to figure out its importance from the perspective of poverty reduction. While it is a fact that several SSN programs were implemented in KSA by the authorities over the years, these initiatives have not been thoroughly investigated, and their role in reducing poverty remains unknown in the literature. Therefore, we expect that the current research paper will bring some fresh insights about the impact of the SANED program on poverty reduction, which is one of the main goals of the policymakers of KSA and is aligned with the Kingdom's Vision 2030.

We structure this research paper in the following order. Section 2 articulates relevant literature. The third section is devoted to highlighting the SANED program, and section 4 sheds light on the model derivation and estimation methods. Section 5 presents a detailed discussion of the results, and the final section concludes the paper and presents policy implications.

2. DISCUSSION ON RELEVANT LITERATURE

Numerous studies have discussed the role of SSNs in poverty reductions across different nations. SSNs have received significant recognition and attention from both researchers and policymakers, mainly due to their significant benefits. The primary reason behind the SSN's implementation is to tackle income poverty by transferring resources from the rich segment of society towards the poor segment of society (Brollo, Coady, Jahan, & Matsumoto, 2024;

Devereux, 2002; Pradhan, Mohd, & Sulaiman, 2013). It means that SSNs could be confidently used as an effective tool for fighting several socioeconomic issues. The study of Adato, Ahmed, and Lund (2004) shed light on the benefits of SSNs and explained that formal SSN tackles poverty mostly by channelizing resources towards the poor. SSNs can cure poverty in the short run, while in the long run, they contribute to a broader development strategy.

Furthermore, Barrientos (2010) showed that investing in social protection and social assistance is very effective in reducing poverty and vulnerability. Asma, Misu, and Islam (2023) suggested that a higher amount of SSNs support, a longer duration of SSNs support, and a shorter payment interval of SSNs should be taken into consideration when redesigning the SSNs. Further, the World Bank (2018) Report demonstrated that SSNs significantly reduce the poverty gap by almost 45 percent, even if they don't move out of poverty. The low-income economies are suggested to initiate the SSNs programs for addressing several socioeconomic issues, including extreme poverty.

The importance of SSNs has also been acknowledged by the authorities of KSA over the years due to their significant positive impacts, particularly on the poor segment of society. The authorities of KSA have initiated several programs following the mechanism of SSNs. The study of Singh et al. (2022) also acknowledged the efforts of the policymakers of KSA in addressing the problem of poverty. In KSA, the SNNs have largely focused on universal subsidies, which provide affordable access to food and fuel for the population, regardless of citizens' specific and targeted needs. For decades, governments in KSA have addressed economic crises through expanding subsidies and/or increasing public sector employment (Chatham House, 2023). These targeted subsidies have helped the general population a great deal in overcoming the most important issues, including poverty alleviation. Alsayyad and Nawar (2017) pointed out that KSA has offered generous SSNs with components of social protection.

KSA has developed social protection systems that have contributory as well as non-contributory aspects. The research of Prayitno, Santoso, and Ekawaty (2018) demonstrated that social assistance and labor market intervention by the authorities have positive effects on the income of poor families in Indonesia. Moreover, social security programs do not have any significant impact on the income of the poor, but they provide a safety net when the family faces an unexpected situation such as layoffs, accidents, and death, in addition to preventing poor families from becoming poorer. On the other hand, Wang, Cai, and Gao (2022) found that SSNs are helpful for the reduction in poverty. Finally, Devereux (2002) displayed that SSNs have significantly addressed the chronic poverty problem by focusing on three African case studies.

Strengthening SSNs in KSA requires careful consideration of various factors and ongoing efforts to improve program design, targeting, and overall effectiveness. By addressing the needs of vulnerable populations through comprehensive and well-designed SSNs, KSA can contribute to a more inclusive and equitable society, as pointed out by Tipu (2024). However, a comprehensive investigation into the exact linkages between the SSNs and poverty is still pending.

Based on previous literature, we conclude that researchers have not paid sufficient attention to examining the issue of poverty alleviation in KSA by focusing on the SANED program. While several SSN programs have been implemented in KSA by the authorities over the years, these initiatives have not been thoroughly investigated, and their role in reducing poverty remained largely untapped in the literature. However, it remains unclear whether the recently launched SSNs programs significantly contribute to poverty reduction. Therefore, this research aims to investigate the relationship between SSNs and poverty in KSA, a topic lacking in previous studies. Our findings would bring some fresh insights and offer quantitative measures that could be utilized by policymakers in evaluating the effectiveness of the SANED program to mitigate poverty in KSA.

3. AN OVERVIEW AND STATISTICS ON SANED PROGRAM

The "General Organization for Social Insurance (GOSI)" established a program to safeguard workers against the risk of being unemployed in the private sector owing to reasons beyond their control. Many socioeconomic problems

stem from unemployment, a widely recognized fact. The "Unemployment Insurance Law SANED)" was approved by Royal decree and was launched in 2014 as endorsed by General Organization for Social Insurance (2014).

The SANED program is designed to target Saudi beneficiaries under the age of fifty-nine who are unemployed for a reason beyond their control[1]. For each month of the first three months, the program pays 60% of the average monthly wages subject to subscription. And 50% of this average for each month exceeds that. The maximum compensation amount shall be (9,000) riyals for each month of the first three months and (7,500) riyals for the next nine months. The maximum period for disbursing compensation is (12) consecutive or intermittent months for each entitlement. It is important to note that this period should not exceed 12 months following each of the 24 consecutive months of employment.

In the following Figure 1, we have graphed the data of the SANED program from 2016 Q1-2023 Q4 to provide an overview for the reader. Figure 1 clearly shows a sharp increase in SANED program registrants following its launch. The registrants for the SANED program reached the highest level in the fourth quarter of 2020 during the COVID-19 pandemic. Since then, we have observed a slight downward movement. However, since the first quarter of 2023, the number of registrations for the SANED program has increased again. Looking into the program and its statistics, it is important to assess its influence on the poverty reduction in KSA, which is one of the main objectives of the authorities.

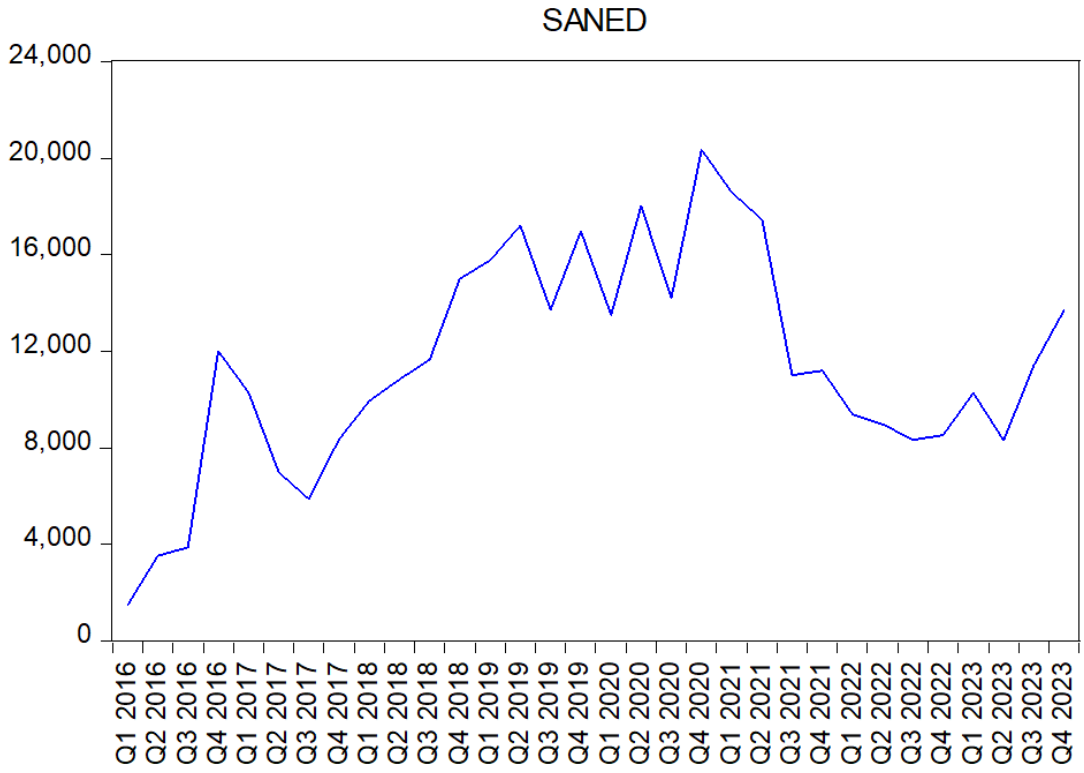

Figure 1. SANED overview.

4. MODELING AND METHODS

4.1. Model Specification

This section outlines the model developed to assess the impact of the SANED program on poverty, considering several key control variables. Poverty has many determinants (Dartanto & Nurkholis, 2013). For instance, Le Goff and Singh (2014) endorsed that trade openness reduces poverty by enhancing real income of the individuals due to relatively low prices in the market because of perfect competition. In other words, trade openness is an effective tool

[1]Discussions on other SSNs programs are provided in the Appendix 1.

to fight against poverty. Similarly, poverty is also dependent on the unemployment level in economies. In this regard, the study of Martínez, Ayala, and Ruiz-Huerta (2001) is important as it has provided significant evidence about the influence of unemployment on poverty. In addition to unemployment and trade openness, inflation rate and government role are also important determinants of poverty. The available literature believes that inflation and government expenditures are also capable of impacting poverty in one way or the other (Sasana & Kusuma, 2018; Siyan, Adegoriola, & Adolphus, 2016). The following model-1 is selected for the analysis.

$$LNPOV_t = B_0 + B_1 LNSANED_t + B_2 LNOPEN_t + B_3 INF_t + B_4 LNUNEMP_t + B_5 LNGE_t + U_t \quad (1)$$

In model 1, the dependent variable is the poverty rate($LNPOV_t$), which is measured by the "multidimensional poverty index" having a range from 0 to 1. The SANED program is the main independent variable ($LNSANED_t$) and it is measured by the number of registered individuals. Trade openness ($LNOPEN_t$) is measured by taking the "trade as a % of GDP (Gross Domestic Product)". Inflation rate (INF_t) is measured by the "growth rate of consumer price index" while the term ($LNUNEMP_t$) represents unemployment and it is measured as "Unemployment, total (% of total labor force) (modeled ILO estimate)". Finally, government expenditures ($LNGE_t$) are measured as a "percentage of GDP" is used to assess the impact of government expenditures on poverty.

Data on poverty index is obtained from the "United Nations (UN)," while data on unemployment is taken from the "International Monetary Fund (IMF)". Similarly, data on SANED is taken from General Organization for Social Insurance (GOSI) website in KSA while data on trade openness and inflation rate is taken from the open data platform. Data is gathered for the period 2016 Q-1 to 2023 Q-4. The period of analysis is chosen based on the availability of data. Data on poverty, which was only available in annual form, is transformed into quarterly to match its frequency with the rest of the data, which was already available in quarterly form.

4.2. Estimation Methods

The data gathered for analysis is a time series by nature, as it varies only with time. It has been written that time series data usually has a problem with not being stationary and can handle small sample bias better than other types of data (Haug, 2002; Narayan & Smyth, 2005). Ignoring the non-stationarity problem would lead to biased results. Therefore researchers, have suggested using cointegration tools instead of "Ordinary Least Squares (OLS)." Over the years, the literature has proposed several cointegration tools. For example, the approaches of Johansen (1988) and the Engle and Granger (1987) have gotten a lot of attention and are commonly used in the literature to test the cointegrating relationships between variables that are not stationary. However, all variables had to be non-stationary for both of the tests mentioned in order to avoid false regression results (Maijama'a & Musa, 2021). Amid this backdrop, for the mixed order of integration of variables, Pesaran, Shin, and Smith (2001) proposed the "Autoregressive Distributed Lag Model (ARDL)".

The ARDL modeling is efficient in handling variables having diverse integration orders, and further, it works well when the observations are not many (Iheanacho, 2017; Islam, Alsaif, & Alsaif, 2022; Tahir, 2020). Over the years, several researchers have employed the ARDL approach to examine cointegrating relationships. We have transformed our model 1 using the ARDL framework.

$$\Delta POV_t = \beta_0 + \sum_{i=1}^{n1} \beta_{1i} \Delta POV_{t-i} + \sum_{i=0}^{n2} \beta_{2i} \Delta SANED_{t-i} + \sum_{i=0}^{n3} \beta_{3i} \Delta OPEN_{t-i} + \sum_{i=0}^{n4} \beta_{4i} \Delta INF_{t-i} + \sum_{i=0}^{n5} \beta_{5i} \Delta UNEMP_{t-i} + \sum_{i=0}^{n6} \beta_{6i} \Delta LNGE_{t-i} + \emptyset_1 POV_{t-1} + \emptyset_2 SANED_{t-1} + \emptyset_3 OPEN_{t-1} + \emptyset_4 INF_{t-1} + \emptyset_5 UNEMP_{t-1} + \emptyset_6 LNGE_{t-1} + \varepsilon_t \quad (2)$$

In model 2, the $(\beta_1 - \beta_6)$ measures short run relationships. The parameters ($\emptyset_1 - \emptyset_6$) represent the long-run impacts. According to the ARDL framework, the absence of cointegration "$(\emptyset_1 = \emptyset_2 = \emptyset_3 = \emptyset_4 = \emptyset_5 = \emptyset_6 = 0)$" will be tested against the presence of cointegration "$(\emptyset_1 \neq \emptyset_2 \neq \emptyset_3 \neq \emptyset_4 \neq \emptyset_5 \neq \emptyset_6 \neq 0)$" using the bound test. The calculated value of the bound test should be matched with values suggested by Narayan (2004). The decision rule is simple. The cointegrating relationship will only be accepted when the F-test value crosses the upper critical limit.

The next step is to specify the short-run model after the confirmation of cointegrating relationship. The short-run model, which is also known as the "Error Correction Model (ECM)". In addition to the short-run impacts, the ECM model also highlights the adjustment speed. The ECM model based on model 2 is specified as follows.

$$\Delta POV_t=\beta_0+\sum_{i=1}^{n1}\beta_{1i}\Delta POV_{t-i}+\sum_{i=0}^{n2}\beta_{2i}\Delta SANED_{t-i}+\sum_{i=0}^{n3}\beta_{3i}\Delta OPEN_{t-i}+\sum_{i=0}^{n4}\beta_{4i}\Delta INF_{t-i}+\sum_{i=0}^{n5}\beta_{5i}\Delta UNEMP_{t-i}+\emptyset_1 ECT_{t-1}+\varepsilon_t \quad (3)$$

5. RESULTS AND DISCUSSIONS

5.1. Unit Root Analysis

Table 1 presents the results of the unit root analysis. The results indicated that the SANED program, government expenditures, and inflation rate remain stationary at the same level. Hence, their integration order is zero. The integration order of poverty, openness, and unemployment rate is one. The ARDL procedure is utilized due to the varying integration order of variables. ARDL is the best suited in the current scenario (Islam et al., 2022; Tahir, 2020).

Table 1. Unit root analysis.

Variables	Level	Difference	Conclusion
$LNPOV_t$	-1.641	-5.548***	I (1)
$LNSANED_t$	-3.252*	-3.154**	I (0)
$LNOPEN_t$	-2.268	-6.003***	I (1)
INF_t	-6.065***	-6.309***	I (0)
$LNUNEMP_t$	-1.730	-5.572***	I (1)
$LNGE_t$	-4.064**	-3.269**	I(0)

Note: "The asterisk, ***, **, * shows significance level at 1,5, and 10 percent".

5.2. Descriptive Analysis

Descriptive analysis is carried out as the first step to provide detailed information about the behavior of the selected variables. Table 2 presents the results of descriptive analysis. The average value of multidimensional poverty is 0.138, while its standard deviation is 0.006, which is marginal. KSA experienced the highest level of poverty (0.151) in the first quarter of 2016, while the lowest value of poverty (0.133) was recorded in the last quarter of 2019. The poverty statistics show that KSA has experienced a relatively lower poverty rate as compared to other countries in the world.

The statistics further indicated that the SANED program has attracted many individuals over the years. The mean value of the SANED program is 11460.630, having a standard deviation of 4582.648. Similarly, the maximum values of the registrants for the SANED program (20346) are observed in the last quarter of 2020. Conversely, the first quarter of 2016 saw the lowest registrant count (1487) for the SANED program. The overall statistics of the SANED program are satisfactory, as its beneficiaries are increasing over time.

Openness to trade takes an average value of 59.496 "(trade as % of GDP), while its deviation from the mean is 4.700. The maximum value of openness (66.023) is recorded for the second quarter of 2022, while the lowest value of openness (45.900) is seen in the third quarter of 2020. These statistics show that the authorities of the KSA must take some immediate policy changes to improve its degree of trade openness, as openness to trade is responsible for many economic benefits, including higher growth rates.

Further, the unemployment statistics show that during the study period, the average unemployment rate is 11.477 percent. The highest level of unemployment (15.447) is witnessed in the fourth quarter of 2019, while its lowest value (7.953) is recorded in the second quarter of 2022. It means that KSA has done well in reducing the problem of unemployment in recent times. Furthermore, the consumer price index records an average inflation rate of 127.352 in KSA, indicating a stable inflation rate. The highest value of inflation, 133.052, is witnessed in the final

quarter of 2023, while the lowest value (117.158) is observed in the last quarter of 2017. Finally, the government expenditures take an average value of 5,260, while their deviation from the mean is 0.82.

Table 2. Descriptive statistics.

Variables	POV_t	$SANED_t$	$UNEMP_t$	$OPEN_t$	INF_t	GE
Mean	0.138	11460.63	11.477	59.496	123.352	5.260
Maximum	0.151	20346.00	15.447	66.023	133.052	5.414
Minimum	0.133	1487.000	7.953	45.900	117.158	5.113
Std. dev.	0.006	4582.648	1.925	4.700	5.303	0.082
Observations	32	32	32	32	32	32

5.3. Cointegration Results

Cointegration findings are depicted in Table 3. The F-test value is greater as compared to critical values at all significance levels. It means that cointegration is present among the variables. Therefore, we have accepted the alternative hypothesis, which believes that variables are cointegrated in the long run.

Table 3. Cointegration results.

Significance level	Lower bound	Upper bound	F-test value
1 %	3.06	4.15	6.420***
5 %	2.39	3.38	
10 %	2.08	3.00	

Note: "The asterisk (***) indicates 1 percent significance level".

5.4. Long Run Results

The long-run results presented in Table 4 show that the SANED program is indeed an effective tool to fight against the problem of poverty in KSA. The coefficient of the SANED program variable is negative and significant, showing a negative relationship between such an initiative and poverty in KSA. This implies that unemployed individuals would be protected more effectively by giving them access to the SANED program, proving their success in achieving one of its primary targets. Our results provide support for the findings of Remler, Korenman, and Hyson (2017) who also demonstrated the effective role of several insurance and non-insurance programs in poverty alleviation. The coverage and volume of the SANED program, which is basically an insurance program, need to be extended due to its effective role in poverty reduction. Similarly, policymakers could also initiate some other relevant programs following the mechanism of the SANED program to effectively address the problem of poverty in the Kingdom. In summary, the SANED program has proved its worth in poverty reduction, which is satisfactory from the perspective of social welfare.

Similarly, the results confirmed that the KSA authorities' implementation of trade openness policies has significantly contributed to addressing the issue of poverty. Results show that increased trade openness reduces poverty in KSA. It is a fact that trade openness promotes healthy and constructive competition among the producers, due to which prices fall sharply in the domestic market. Reduced prices amid increased trade openness are indeed important to winning the fight against existing poverty. Our results are supported by the study of Le Goff and Singh (2014) who also showed that openness reduces poverty. Thus, increasing the degree of trade openness by promoting a higher trade liberalization process contributes to poverty reduction in KSA.

Unemployment appeared to be the main hurdle in curbing the problem of poverty. The coefficient of unemployment is significant and positive, exhibiting a positive relationship between unemployment and poverty. The unemployment rate in economies normally leads to several socioeconomic problems, including higher poverty. Saunders (2002) rightly stated that unemployment indeed raises the risk of poverty and further contributes to income inequality; therefore, it is undesirable. Therefore, our results confirmed the effect of the increased unemployment rate

on poverty. From the policy perspective, our results suggest that the authorities of KSA could take some visible and effective steps to address the unemployment problem. One of the potential solutions for addressing the unemployment problem is to encourage entrepreneurial activities among the population. Recent research believes that the facilitation of entrepreneurial activities is the potential solution to poverty (Aziz, Grant, & Arshed, 2020). Policymakers expect the facilitation of entrepreneurial activities to directly address the unemployment problem and indirectly reduce poverty.

Our results on the impact of the inflation rate show that it has a negative impact on observed poverty. Wollie (2018) shows that under certain thresholds, inflation has a positive effect on economic growth, while it has a negative effect if it exceeds the threshold. Thus, the negative relationship between inflation and poverty could be triggered by the fact that higher economic growth causes inflation while reducing poverty through increasing income levels. Lastly, the results reflected that government expenditures have helped in poverty reduction. The coefficient of government expenditure is negative and statistically significant. Sasana and Kusuma (2018) also provided significant empirical evidence that government expenditures lead to poverty reduction in Indonesia. The findings suggest that to reduce poverty, the government authorities must play an active role by initiating some new programs and extending the existing ones that target the unemployed and poor segment of society. These programs are effective in reducing poverty, as evident from the results.

Table 4. Long run results.

Variables	Coefficients	S. E	T-value	Probability
$LNSANED_t$	-0.100***	0.008	-10.916	0.000
$LNOPEN_t$	-0.347***	0.061	-5.694	0.000
$LNUNEMP_t$	0.043*	0.024	1.762	0.097
INF_t	-1.504***	0.498	-3.017	0.008
$LNGE_t$	-0.106**	0.048	-2.182	0.044
Constant	0.825	0.450	1.831	0.085

Note: The asterisk (***), (**) and (*)shows significance at 1,5 and 10 percent respectively.

5.5. Short Run Findings

Short-run results are reported in Table 5. The results obtained have also confirmed the significant role of the SANED program in reducing the poverty problem in KSA. Trade openness has also played a dominant role in helping the authorities address the poverty problem in the KSA. Unemployment appeared to be irrelevant in explaining poverty in the short run. The results indicated that the coefficient of unemployment is positive but statistically insignificant. One justification is the existence of the unemployment insurance program, which mitigates the effects of unemployment on poverty in the short run. We must address unemployment because its effects are long-lasting and can manifest in the future. The influence of government expenses on the poverty issue is negative but insignificant in the short run. Finally, the "error correction term (ECT)" is negative and significant. The value of the ECT is 0.626, which implies that the model corrects itself and converges toward equilibrium by 62 percent in a quarter.

Table 5. Short run results.

Variables	Coefficients	S. E	T-value	Probability
$\Delta LNSANED_t$	-0.036***	0.007	-5.079	0.000
$\Delta LNOPEN_t$	-0.091**	0.035	-2.536	0.022
$\Delta LNUNEMP_t$	0.027	0.019	1.369	0.189
ΔINF_t	-0.526***	0.098	-5.359	0.000
$\Delta LNGE_t$	-0.066	0.049	-1.346	0.196
ECT (-1)	-0.626	0.079	-7.86	0.000

Note: The asterisk (***) and (**) shows significance at 1 and 5 percent respectively.

5.6. Reliability and Stability Testing

The reliability testing of the estimated model is carried out, and results are displayed in Table 6. It turns out that the residuals are normally distributed and that the "serial correlation" and "heteroscedasticity" issues are not connected to the models that were estimated. The Ramsey test confirmed that the estimated model is correct in functional form. Finally, models residuals are indeed stable. The estimated lines of "CUSUM test" and the "Square of CUSUM test" are shown in Figures 2 and 3, respectively. The estimated lines of both tests are present inside the critical lines, which implies that the estimated models are stable.

Table 6. Reliability.

Test	Value	Conclusion
"LM test (Serial correlation)"	0.354 (0.707)	"No serial correlation"
"White test (Heteroscedasticity)"	1.370 (0.278)	"No heteroscedasticity"
"Normality (Jarque-Bera)"	0.164 (0.921)	"Normal distribution"
"Functional form (Ramsey test)"	1.301(0.212)	"Correct functional form"

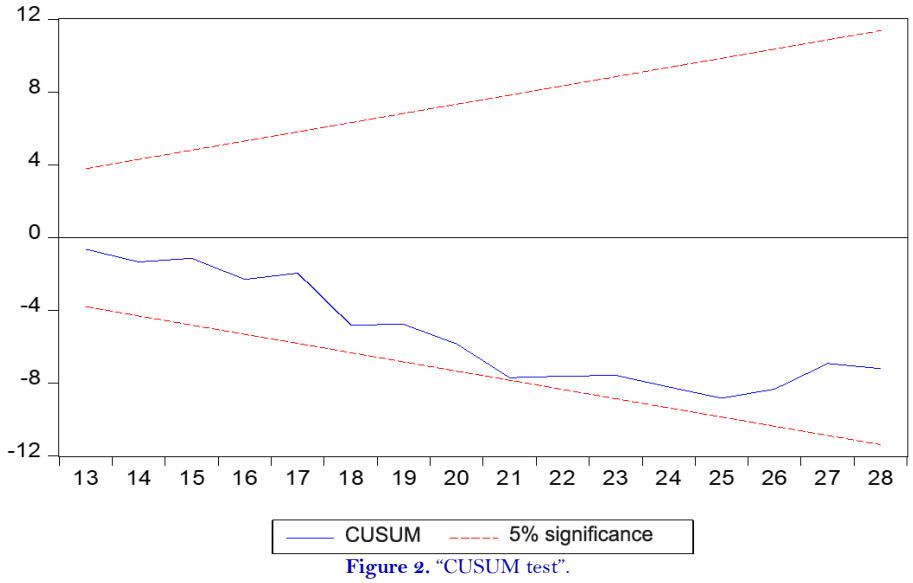

Figure 2. "CUSUM test".

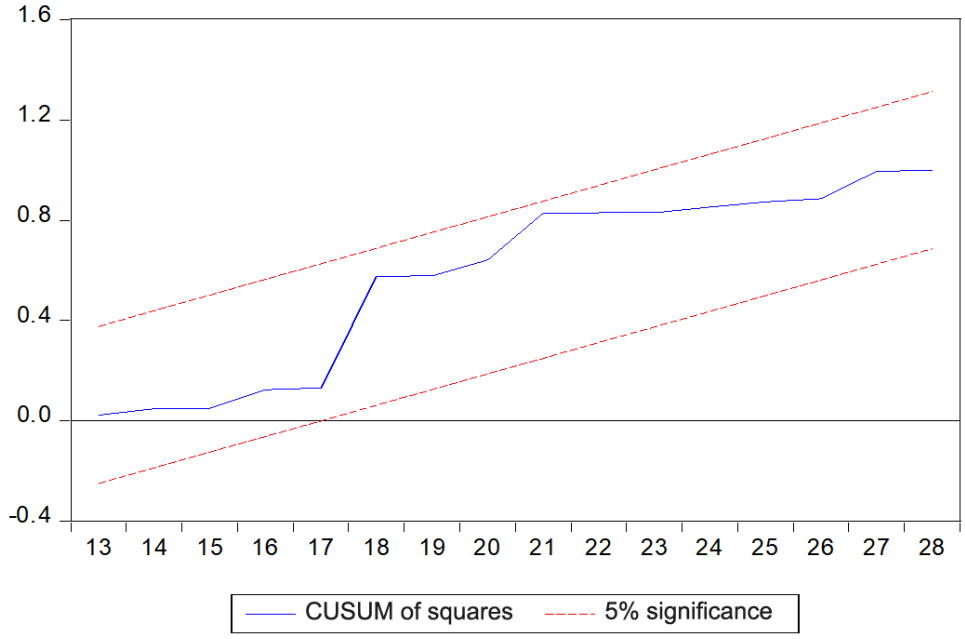

Figure 3. "Sum of square of CUSUM test".

6. CONCLUSION AND IMPLICATIONS

6.1. Conclusion

This paper estimated the influence of the recently launched SANED program on poverty reduction in KSA. Findings and analysis of this work are based on quarterly data covering the period 2016-2023. We use the ARDL modeling to evaluate the influence of the SANED program on poverty reduction.

Our results showed that SANED's implementation as unemployment insurance was an effective tool that successfully contributed to poverty reduction in KSA. The research in this paper shows that SANED worked to find unemployed people work in the short term, and its benefits continued into the long term, suggesting that it was successful in reducing poverty over the long term. Prior literature largely ignored the significance and contribution of the SANED program towards poverty reduction. Hence, the current study quantitatively estimated the impact of the SANED program on poverty reduction and fulfilled the existing research gap in literature. So, a smart policy suggestion for KSA's policymakers who want to solve the problem of poverty is to make the existing SANED program cover more people and start some other relevant programs. Programs like SANED and others will undoubtedly effectively tackle the poverty issue in KSA. Similarly, greater trade openness has a significant impact on mitigating poverty both in the short and the long run, while the influence of government spending on poverty reduction is only evident in the long run. Finally, the unemployment rate appeared to be the main cause of the existing poverty problem in KSA, and its effect is evident in the long run.

6.2. Policy Implications

Based on the analysis carried out and obtained results, the present study suggests the following points for the consideration of the authorities of KSA while formulating policies for addressing the problem of poverty for those who lose jobs due to reasons beyond their control.

1) The first policy suggestion from the policymakers of KSA is to maintain the SANED program, as we quantitatively proved its effectiveness in reducing poverty. Those who lose their jobs due to circumstances beyond their control should have access to the program. Moreover, the government authorities could initiate additional programs based on the SANED framework. Finally, the role of the private sector is also important in launching some new programs for reducing poverty. Hence, all stakeholders need to work together to tackle poverty in KSA.
2) Secondly, the authorities of KSA must gear up and promote higher trade liberalizations. Trade liberalization is indeed effective in poverty reduction, as it ensures accessibility to better products at reduced prices on international markets due to significant competition among the producers. Competition-driven lower prices boost the consumer's real income, effectively addressing the poverty issue.
3) Government authorities should continue their rigorous efforts to lower the unemployment rate, as it is a big hurdle in the fight against poverty in KSA, as confirmed by our findings. Beneficiaries of the SANED program should receive proper training to qualify them for re-entry into the job market. In addition, the government authorities also suggested encouraging the entrepreneurial mindset among the population, as it is one of the potential solutions for tackling the unemployment problem.
4) Finally, the government authorities of KSA are also suggested to continue their role in the economy by increasing their expenditures, as these expenditures are helpful in fighting against poverty, as confirmed by results. The role of government is indeed important in recent times, as it is a potential remedy for several socioeconomic problems, including poverty.

6.3. Limitations

1) The first limitation of the current study is that it has only focused on the SANED program initiated to address the problem of poverty among the unemployed individuals who lose jobs. While there are many

other SSNs programs currently in place in KSA, data on these programs are not available. Future studies should concentrate on how other programs contribute to tackling the issue of poverty among unemployed individuals.

2) The study focused on the quarterly data, which was only available from 2016 and onward. Therefore, to avoid the degree of freedom problem, the study has used only a few control variables. Future studies should focus on more extended data and should include other determinants of poverty in the models to see how the proposed models respond to additional control variables.

3) The results of the study are only valid for KSA, and hence generalization of results is not extensive. It is suggested that future studies should test our proposed models by focusing on some other economies and programs to provide more robust evidence about SSNs and poverty reduction.

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REFERENCES

Adato, M., Ahmed, A. U., & Lund, F. (2004). Linking safety nets, social protection, and poverty reduction: Directions for Africa.

Al Lily, M., & Waibel, H. (2021). *The socioeconomic determinants of urban poverty in Saudi Arabia*. Hannover Economic Papers. No. 691.

Alsayyad, A., & Nawar, A. (2017). *The social dimensions of Saudi vision 2030: A paradigm shift*. Brasília, DF-Brazil: International Policy Centre for Inclusive Growth.

Asma, K. M., Misu, F., & Islam, M. A. (2023). The impact of social safety net programs on poverty, food security and standard of living in Bangladesh. *The International Journal of Community and Social Development*, *5*(1), 71-96. https://doi.org/10.1177/25166026221135328

Aziz, O., Grant, K. A., & Arshed, N. (2020). Does entrepreneurial activity assist in the alleviation of poverty? *The Journal of Applied Business and Economics*, *22*(7), 114-132.

Barrientos, A. (2010). Vulnerability and social protection in small island states: The case of Grenada. *Social and Economic Studies*, *59*(1-2), 3-30.

Brollo, F., Coady, D., Jahan, S., & Matsumoto, R. (2024). *Challenges facing SSNs in emerging and developing economies*. International Monetary Fund. No. 2024/096.

Chatham House. (2023). *Social safety nets in the MENA region. Chatham House*. Retrieved from https://www.chathamhouse.org/about-us/our-departments/middle-east-and-north-africa-programme/social-safety-nets-mena-region. [Accessed December 4, 2024]

Conning, J., & Kevane, M. (2002). Community-based targeting mechanisms for social safety nets: A critical review. *World Development*, *30*(3), 375-394. https://doi.org/10.1016/s0305-750x(01)00119-x

Dartanto, T., & Nurkholis. (2013). The determinants of poverty dynamics in Indonesia: Evidence from panel data. *Bulletin of Indonesian Economic Studies*, *49*(1), 61-84. https://doi.org/10.1080/00074918.2013.772939

Devereux, S. (2002). Can social safety nets reduce chronic poverty? *Development Policy Review*, *20*(5), 657-675. https://doi.org/10.1111/1467-7679.00194

Dugarova, E. (2016). *Implementing SDG 1: Poverty eradication through family support policies and social protection measures in transition countries*. Paper presented at the Expert Group Meeting Family Policies and the.

Engle, R. F., & Granger, C. W. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica: Journal of the Econometric Society*, 251-276.

General Organization for Social Insurance. (2014). *Unemployment insurance (SANED). General Organization for Social Insurance*. Retrieved from https://www.gosi.gov.sa/GOSIOnline/Unemployment_Insurance_%28SANED%29&locale=en_US. [Accessed December 4, 2024]

Haug, A. A. (2002). Temporal aggregation and the power of cointegration tests: A Monte Carlo study. *Oxford Bulletin of Economics and Statistics*, *64*, 399–412.

Iheanacho, E. (2017). ARDL approach to trade libralisation and economic growth in the developing country: Evidence from Nigeria. *African Research Review*, *11*(2), 138-159.

Islam, M. S., Alsaif, S. S., & Alsaif, T. (2022). Trade openness, government consumption, and economic growth nexus in Saudi Arabia: ARDL cointegration approach. *Sage Open*, *12*(2), 1-11.

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of Economic Dynamics and Control*, *12*(2-3), 231-254. https://doi.org/10.1016/0165-1889(88)90041-3

Le Goff, M., & Singh, R. J. (2014). Does trade reduce poverty? A view from Africa. *Journal of African Trade*, *1*(1), 5-14.

Maijama'a, R., & Musa, K. S. (2021). Crude oil price, interest rate and unemployment nexus in Nigeria: An application of Toda and Yamamoto long-run causality procedure. *Marketing and Branding Research*, *8*(1), 1-16.

Martínez, R., Ayala, L., & Ruiz-Huerta, J. (2001). The impact of unemployment on inequality and poverty in OECD countries. *Economics of Transition*, *9*(2), 417-447.

Narayan, P. K. (2004). Fiji's tourism demand: The ARDL approach to cointegration. *Tourism Economics*, *10*(2), 193-206. https://doi.org/10.5367/000000004323142425

Narayan, P. K., & Smyth, R. (2005). Electricity consumption, employment and real income in Australia evidence from multivariate Granger causality tests. *Energy policy*, *33*(9), 1109-1116. https://doi.org/10.1016/j.enpol.2003.11.010

Paitoonpong, S., Abe, S., & Puopongsakorn, N. (2008). The meaning of "social safety nets". *Journal of Asian Economics*, *19*(5-6), 467-473.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289-326.

Pradhan, M. A. H., Mohd, S., & Sulaiman, J. (2013). An investigation of social safety net programs as means of poverty alleviation in Bangladesh. *Asian Social Science*, *9*(2), 139.

Prayitno, H., Santoso, D., & Ekawaty, M. (2018). The impact of social safety net programs on poor household income. *JEJAK: Journal Ekonomi dan Kebijakan*, *11*(2), 244-262.

Ralston, L., Andrews, C., & Hsiao, A. J. Y. (2017). *The impacts of safety nets in Africa: What are we learning?* World Bank Policy Research Working Paper, No. 8255.

Remler, D. K., Korenman, S. D., & Hyson, R. T. (2017). Estimating the effects of health insurance and other social programs on poverty under the affordable care act. *Health Affairs*, *36*(10), 1828-1837.

Sasana, H., & Kusuma, P. (2018). Government expenditure and poverty in Indonesia. *KnE Social Sciences*, *3*(10), 142–153. https://doi.org/10.18502/kss.v3i10.3125

Saunders, P. (2002). The direct and indirect effects of unemployment on poverty and inequality. *Australian Journal of Labour Economics*, *5*(4), 507-529.

Singh, H. P., Singh, A., Alam, F., & Agrawal, V. (2022). Impact of sustainable development goals on economic growth in Saudi Arabia: Role of education and training. *Sustainability*, *14*(21), 14119. https://doi.org/10.3390/su142114119

Siyan, P., Adegoriola, A. E., & Adolphus, J. A. (2016). Unemployment and inflation: Implication on poverty level in Nigeria.

Tahir, M. (2020). Trade and life expectancy in China: A cointegration analysis. *China Economic Journal*, *13*(3), 322-338. https://doi.org/10.1080/17538963.2020.1783745

Tipu, K. U. T. (2024). *Considerations for social safety nets and vulnerable populations in KSA*. Retrieved from https://www.linkedin.com/pulse/capital-gains-tax-property-sales-ksa-kaleem-ullah-tipu-aca-veosf/

Wang, J. S.-H., Cai, Y., & Gao, Q. (2022). How effective are social safety net programs in reducing poverty risks? A comparative study of Taiwan and Southeast China. *Journal of Asian Public Policy, 15*(3), 338-373. https://doi.org/10.1080/17516234.2021.1920328

Wollie, G. (2018). The relationship between inflation and economic growth in Ethiopia. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 1*(3), 1-8. https://doi.org/10.33258/birci.v1i3.73

World Bank. (2018). *The state of social safety nets 2018.* Washington, DC: World Bank.

Appendix 1. Social protection programs.

a) Hafiz Program

"In the Hafiz Program, 2000 riyals are disbursed monthly for one year to support and motivate serious job seekers who are eligible for the financial allocation in accordance with eligibility controls. The job search incentive includes providing training and qualification programs and assistance in obtaining work for beneficiaries, to support and increase their chances of obtaining the appropriate job that meets their aspirations".

b) Doroob Program

"It seeks to develop the capabilities and raise the skills of the national workforce, male and female, and provide them with job skills that support them in obtaining the appropriate job and settling in it according to the requirements of the Saudi labor market".

c) Tamheer Program

"They aim of this program is to train Saudi male and female graduates from local and foreign universities who work in government institutions and distinguished companies in the private sector, so that they can acquire the experience and skills necessary to prepare them and prepare them to participate in the labor market".

d) Hadaf Leadership Academy

"This is to prepare and develop future national leaders from the private sector of both genders, and to assume leadership of establishments in the Kingdom. This is in fulfillment of the Kingdom's Vision 2030 (distinguished qualitative localization of leaders with the ability to plan creatively and innovate)"

e) Nitaqat Program

"It is a program to encourage establishments to localize jobs, as its basic idea is based on classifying entities that employ ten or more workers into four bands (red / yellow / green / platinum) according to the percentage of localization of jobs, so that the entities with the least localization are in The red and yellow bands, while the entities with higher localization are classified in the green and platinum bands"

f) Professional and Localization Initiatives

"The initiative aims to localize professions based on the number of job seekers who are qualified for the profession if sufficient jobs are available to cover them partially or completely".