



جامعة الموصل
كلية الإدارة والاقتصاد

قياس وتحليل اثر العوامل البيئية في القيمة المضافة الزراعية لبلدان مختارة

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المستخلص :

تتناول هذه الدراسة تحليل أثر العوامل البيئية والمناخية في القيمة المضافة الزراعية لعدد من الدول المختارة، مع التركيز بصورة خاصة على العراق، خلال المدة (1990-2023)، بهدف تقديم رؤية تحليلية تسهم في تعزيز القيمة المضافة للقطاع الزراعي ورفع كفاءته الاقتصادية. وتنطلق الدراسة من أهمية العلاقة بين المتغيرات البيئية والإنتاج الزراعي، لما لها من انعكاسات مباشرة على الاستقرار الاقتصادي والأمن الغذائي على المستويين المحلي والدولي.

وتركز الدراسة على قياس تأثير التغيرات المناخية، المتمثلة في درجات الحرارة، ومعدلات هطول الأمطار، وانبعاثات ثاني أكسيد الكربون، في أداء القطاع الزراعي واستدامته الاقتصادية. وتكتسب هذه القضية أهمية متزايدة في ظل تصاعد الظواهر المناخية المتطرفة، مثل موجات الجفاف والفيضانات، وما تسببه من تحديات متنامية أمام النشاط الزراعي والإنتاج الغذائي، الأمر الذي يجعل من الضروري تبني سياسات اقتصادية وزراعية قادرة على التكيف مع المتغيرات البيئية المعاصرة.

واعتمدت الدراسة على نموذج الانحدار الذاتي للفجوات الزمنية الموزعة Autoregressive Distributed Lag Model لتحليل العلاقات الديناميكية طويلة الأجل وقصيرة الأجل بين المتغيرات، باستخدام بيانات سلاسل زمنية لثمانى دول هي: Pakistan، Palestine، Jordan، Turkey، United States، Japan، Senegal، مع إشارة خاصة إلى Iraq. وتمثلت القيمة المضافة الزراعية بالمتغير التابع، في حين شملت المتغيرات التفسيرية مجموعة من المؤشرات البيئية، وهي انبعاثات ثاني أكسيد الكربون (CO_2)، واستخدام الأسمدة الكيميائية (FE)، ومعدلات الأمطار السنوية (RRA)، ومتوسط درجات الحرارة (CTI).

وأظهرت النتائج أن جميع المؤشرات البيئية تمتلك تأثيرات معنوية في القيمة المضافة الزراعية وفق تقديرات نموذج ARDL، إلا أن طبيعة هذه التأثيرات واتجاهاتها اختلفت بين الدول محل الدراسة، سواء على المدى القصير أم الطويل، بما يعكس اختلاف الخصائص المناخية والاقتصادية والبنى الزراعية بين هذه الاقتصادات.

Abstract

This study examines the impact of environmental and climatic factors on agricultural value added in a group of selected countries, with particular emphasis on Iraq, over the period (1990–2023). The study aims to provide an analytical framework that contributes to enhancing agricultural value added and improving the economic efficiency of the agricultural sector. It is based on the significance of the relationship between environmental variables and agricultural production, given their direct implications for economic stability and food security at both the domestic and international levels.

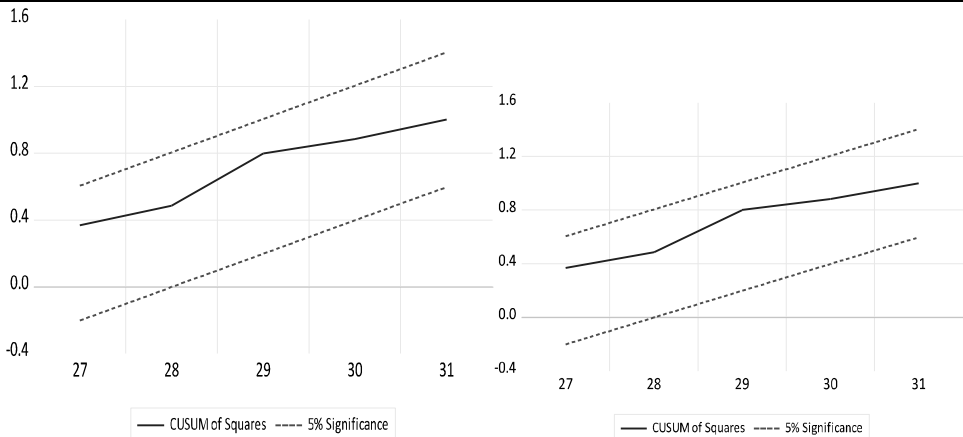
The study focuses on measuring the effects of climate-related variables, including temperature changes, rainfall patterns, and carbon dioxide emissions, on the performance and economic sustainability of the agricultural sector. This issue has become increasingly important in light of the growing frequency of extreme climatic events, such as droughts and floods, and their adverse consequences for agricultural activity and food production. Consequently, there is a pressing need to formulate economic and agricultural policies capable of adapting to contemporary environmental changes.

To estimate these relationships, the study employs the Autoregressive Distributed Lag (ARDL) model in order to analyze both the long-run and short-run dynamic relationships among the variables, using time-series data for eight countries: Jordan, Palestine, Pakistan, Turkey, United States, Japan, Senegal, with special reference to Iraq. Agricultural value added was employed as the dependent variable, while the explanatory variables consisted of a set of environmental indicators, namely carbon dioxide emissions (ECO2), fertilizer use (FE), annual rainfall rates (RRA), and average temperature (CTI).

The findings reveal that all environmental indicators exert statistically significant effects on agricultural value added according to the ARDL model estimations. However, the magnitude and direction of these effects varied across the countries under study in both the short and long run, reflecting differences in climatic conditions, economic structures, and agricultural systems among these economies.

Measuring and analyzing the impact of environmental factors on agricultural value added in selected countries

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HIGHLIGHTS	GRAPHICAL ABSTRACT
The graph below indicates that the model is statistically and economically stable, meaning that analyses and forecasts based on this model can be reliable within the specified time period. Source: Prepared by the researcher using EViews 12 and World Bank data.	
Keywords: Value Added – Environmental Factors – ARDL Model – Iraqi Economy	ABSTRACT This study examines the impact of environmental and climatic factors on agricultural value added in a group of selected countries, with particular emphasis on Iraq, over the period (1990–2023). The study aims to provide an analytical framework that contributes to enhancing agricultural value added and improving the economic efficiency of the agricultural sector. It is based on the significance of the relationship between environmental variables and agricultural production, given their direct implications for economic stability and food security at both the domestic and international levels. The study focuses on measuring the effects of climate-related variables, including temperature changes, rainfall patterns, and carbon dioxide emissions, on the performance and economic sustainability of the agricultural sector. This issue has become increasingly important in light of the growing frequency of extreme climatic events, such as droughts and floods, and their adverse consequences for agricultural activity and food production. Consequently, there is a pressing need to formulate economic and agricultural policies capable of adapting to contemporary environmental changes. To estimate these relationships, the study employs the Autoregressive Distributed Lag (ARDL) model in order to analyze both the long-run and short-run dynamic relationships among the variables, using time-series data for eight countries: Jordan, Palestine, Pakistan, Turkey, United States, Japan, Senegal, with special reference to Iraq. Agricultural value added was employed as the dependent variable, while the explanatory variables consisted of a set of environmental indicators, namely carbon dioxide emissions (ECO2), fertilizer use (FE), annual rainfall rates (RRA), and average temperature (CTI). The findings reveal that all environmental indicators exert statistically significant effects on agricultural value added according to the ARDL model estimations. However, the magnitude and direction of these effects varied across the countries under study in both the short and long run, reflecting differences in climatic conditions, economic structures, and agricultural systems among these economies. 2026 PhD Dissertation @Univ. of Mosul, College of Administration and Economics., Civ. Economics. Dept. (https://www.uomosul.edu.iq/). https://uomosul.edu.iq/libcentral E-Mail: centrallibrary@uomosul.edu.iq amtihan.23bap159@student.uomosul.edu.iq

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