



KENYATTA UNIVERSITY
EXAMINATION FOR THE DEGREE OF DEGREE OF MASTER OF ECONOMICS
(POLICY AND MANAGEMENT)

EAE 829: ECONOMIC POLICY ANALYSIS, DESIGN AND EVALUATION

2ND SEMESTER 2025/2026

TIME: 2 HOURS

INSTRUCTIONS:

Answer all the FOUR Questions. Each Question carries 15 marks

Question One

The Republic of Azuria, a middle-income nation currently standing at a developmental crossroads, has long relied on its abundant coal reserves to drive industrial growth. At present, coal-fired plants account for 70% of the national electricity grid, anchoring an industry that provides direct employment to 150,000 workers. These jobs are heavily concentrated in the "Rust Belt" provinces, where coal mining is not merely an industry but the primary backbone of the regional economy and social fabric.

The global landscape is, however, shifting. Under increasing international pressure and having recently signed a landmark global climate pact, the Azurian government has committed to a bold 40% reduction in carbon emissions by the year 2035. To meet this ambitious target, the Ministry of Energy has proposed a dual-track strategy: the immediate imposition of a Carbon Tax on industrial emissions and the phased decommissioning of three of the country's largest coal-fired power plants over the next decade.

While the environmental necessity is clear, the short-term economic projections have sparked intense national debate. Preliminary economic modelling conducted by the National Treasury suggests that the Carbon Tax will lead to an 18% surge in household electricity bills, disproportionately affecting low-income families. Furthermore, the economy is expected to experience a transitional shock, with GDP growth likely to slow by 0.5% during the first three years of implementation. The labour market presents a further paradox: while the transition to solar and wind energy is projected to create 200,000 new jobs-surpassing the total losses in the coal sector-these opportunities are geographically mismatched. The renewable energy hubs are situated in the coastal and northern plains, hundreds of kilometers away from the mining communities in the south.

This policy shift has mobilized a diverse array of powerful stakeholders. Trade unions have already begun signaling their intent to strike, citing a "betrayal" of the industrial workforce. Simultaneously, the manufacturing sector warns that the sudden spike in energy costs will erode

Azuria's export competitiveness in the global market. Conversely, environmental NGOs and urban youth movements are demanding an even more aggressive timeline, arguing that the long-term costs of climate inaction far outweigh the temporary pains of restructuring. As a senior policy advisor to the Minister of Finance, you are tasked with navigating these competing interests to ensure the transition is both economically viable and politically sustainable.

- (a) Draft the "Executive Summary" section of a policy brief addressed to the Minister of Finance, clearly defining the policy problem, the trade-offs involved, and your primary recommendation
5 marks
- (b) Identify and briefly evaluate **two** distinct policy alternatives (beyond the Carbon Tax) that the government could implement to mitigate the negative social impacts of the "Green Transition". Justify your choices based on economic efficiency and political feasibility
6 marks
- (c) Policy briefs often fail to influence because they are too technical for the target audience. Explain how you would "frame" the Carbon Tax to the general public to minimize resistance, and identify one specific "Call to Action" that should appear at the end of the brief.
(4 marks)

Question Two

- a. In reference to the case study in Question 1 above, the Ministry of Energy's modelling shows that the Carbon Tax will successfully reduce national emissions by 40%. However, the modelling also reveals that even with the projected 200,000 new renewable energy jobs, the "Rust Belt" mining provinces will still face a net deficit of 50,000 jobs, leading to a permanent decline in regional household income. Distinguish between **Effectiveness** and **Adequacy** in the context of this policy, and evaluate the policy based on the two parameters. Justify your answer based on the case data.
6 marks
- b. The Azuria government plans to implement the Carbon Tax immediately to meet international treaty deadlines. While urban environmental groups applaud the speed, the trade unions and manufacturing lobby groups have not been consulted on the implementation timeline.
 - (i) Analyse the trade-off between **Responsiveness** and **Acceptability** in this policy
2 marks
 - (ii) How does the **Appropriateness** of the policy suffer when one stakeholder's needs are prioritized of another's?
3 marks
- c. To address the 18% spike in electricity costs, the Minister suggests a "rebate" available only to households in the northern coastal provinces where renewable energy is produced,

Rebate - Northern coastal

excluding the southern mining provinces that are losing jobs.

- (i) Critique this rebate plan using the criteria of **Equity** (Horizontal or Vertical) and **Legality** 2 marks
- (ii) Identify and explain **one specific** legal or ethical challenge this discriminatory rebate might face in a constitutional democracy. 2 marks

Question Three

The Government of the Republic of Kenya and the Government of the Republic of Uganda are intent on extending the Mombasa-Nairobi-Naivasha Standard Gauge Railway (SGR) to Kisumu, Malaba and ultimately Kampala, Uganda. The multi-phase expansion seeks to link Kenya and Uganda through a continuous SGR network. It aims to improve regional trade by cutting down the transit time for cargo from Mombasa to Kampala by nearly 30%. The policy intervention aims to serve as a major cargo artery for the Great Lakes region, eventually supporting trade with Rwanda and the Democratic Republic of Congo. Assume the policy option has an initial capital investment of US\$ 500 million; annual net social benefits (years 1-5) of US\$ 120 million per year, which includes fuel savings, reduced travel time, and carbon credits; and terminal value of the infrastructure asset of US\$ 100 million at the end of year 5.

- (a) The National Treasury currently mandates a social discount rate of 5%. Calculate the net present value of the intervention over a 5-year horizon 6 marks
- (b) A group of policy analysts argue that because this is "Green" policy intervention with long-term climate benefits, a lower discount rate of 3% should be used. However, the Central Bank warns of inflation and suggests a rate of 7%. How sensitive is this policy's viability to the choice of the discount rate? Show your workings clearly. 5 marks
- (c) In a formal cost-benefit-analysis, we must account for intangible benefits. If the net present value of the intervention at 5% was slightly negative, explain how a policy analyst would justify the policy option using the concept of externalities. Provide two specific examples of positive externalities relevant to this intervention. 4 marks

Question Four

To address falling agricultural productivity and rural-urban migration, the Ministry of Agriculture launched the "Digital Farmer" Initiative. It distributed 50,000 subsidized smartphones pre-loaded with an AI app providing real-time weather alerts and market prices for maize. This was at a cost of US\$ 10 million funded through a one-time international grant. By end of the first year, 80% of the farmers used the app to time their harvests, leading to a 15% increase in crop yields for those specific farmers. By the second year, the grant ended but the government could not afford the server maintenance costs or the 4G data subsidies. Also, 60% of the phones have been sold or broken, and the "digital divide" has widened as wealthier farmers in the North benefit more than the subsistence farmers in the South.

$$NPV = \frac{PV}{\text{of Interest rate}}$$

$$= \frac{500}{1.05} + \frac{120}{1.05^2} + \frac{120}{1.05^3} + \frac{120}{1.05^4} + \frac{120}{1.05^5} + \frac{100}{1.05^5}$$

- i. Evaluate the **relevance** of the "Digital Farmer" Initiative to the subsistence farmers in the South versus its **efficiency** in terms of the US\$ 10 million expenditure 5 marks
- ii. Contrast the **effectiveness** of the policy initiative in Year 1 with its overall **impact** by Year 2. Specifically address the unintended impact on the "digital divide" between the different regions of the country. 6 marks
- iii. Identify the primary failure of **sustainability** in this initiative, and suggest a specific policy modification that would have improved the financial sustainability of the project without relying on permanent grants. 4 marks

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