

## 2014 H2 Economics Prelim Exam Paper 1 Answers

### Question 1

(a)	<b>i) Describe the trend of the price of natural gas in USA between 2008 and 2012.</b>	<b>[1]</b>
	Overall, price of natural gas decreased from 2008 to 2012.	
	<b>ii) Using the data and a diagram, account for the trend observed.</b>	<b>[4]</b>
	Improvement in extraction of natural gas has reduced marginal cost of producing gas, leading to a rightward shift in the supply curve. Evidence: "Improvement in fracking to obtain natural gas" (Extract 1 para 1) [2m]  The "growth in demand" for natural gas was also slow (Extract 2 para 1), suggesting that the increase in supply exceeded the increase in demand → supply shift right more than demand → surplus → overall price of natural gas decreased [2m]  Award max 3m if only supply side reason is mentioned. 1m for diagram	
(b)	<b>i) With reference to the data, explain the type of market structure in which the US natural gas industry operates in.</b>	<b>[2]</b>
	Oligopoly industry. [1m]  Evidence: - Presence of "energy giants such as ExxonMobil, Shell and Chevron" suggest that the market is concentrated in the hands of a few large firms.  [Any 1 evidence + explain → 2marks]  No marks for theoretical explanation that is not backed up by evidence from the extract.	
(b)	<b>ii) Explain why big natural gas producers may be better able to withstand low prices of their output.</b>	<b>[2]</b>
	Big natural gas producers have more market power → likely to have consolidated some supernormal profits [1m] → deeper pockets to sustain the fall in revenue because of lower prices of output. [1m]  Or  Big natural gas producers have a larger market share, hence produce a larger amount of output. As a result, they are able to reap internal economies of scale → unit cost of production falls with output. [1m] The lower unit cost of production helps to cushion the fall in revenue as a result of lower prices of their output. [1m]  Max of 1m for identification of 2 points, but without any explanation of any of the points.	
(c)	<b>The price of natural gas is typically much higher outside of USA.</b>	<b>[3]</b>
	<b>Explain how you would expect this price differential to change over time.</b>	
	Currently, the price of natural gas is typically higher outside of USA due to the high demand and limited supply in those countries. As US exports natural gas to these	

	<p>countries, the supply of natural gas increases in these other markets, causing prices of natural gas in other countries to fall [1m].</p> <p>At the same time, the supply of natural gas in US will decrease, causing the prices in US to rise [1m], and hence the price differential should fall over time [1m].</p> <p>Other possible answer: As mentioned from the extract, gas-consuming American businesses object to the idea of exporting LNG. With US not supplying much to the overseas markets, there will be little change to the prices of natural gas outside of US. As such, there might not be much change to the price differential over time.</p>	
<b>(d)</b>	<b>Assess how the export of natural gas will impact producers and households in USA.</b>	<b>[8]</b>
	<p><u>Introduction</u></p> <p>Export of natural gas reduces the supply for domestic economy → fall in supply leads to higher domestic prices of natural gas.</p> <p>The effects can be assessed by looking at the impact on different producers' cost and revenue and the impact on prices for consumers and jobs for members of households.</p> <p><u>Producers:</u></p> <ul style="list-style-type: none"> <li>- Related industries e.g. petrochemicals, agriculture, automobile that rely on oil as a factor input will experience higher COP. Assuming revenue unchanged, firms may experience fall in profits. (Evi: Extract 1 para 2)</li> <li>- Ev: extent of impact depends on the degree of dependence on natural gas. Greater the degree of dependence → more inelastic the demand for natural gas is, greater the increase in COP.</li> <li>- For natural gas producers, exporting natural gas to countries where demand exceeds supply → open up new markets for natural gas producing firms in US (extract 2 para 4) → increase demand for natural gas → higher revenue</li> <li>- Ev: however cost of building liquefaction facility is capital intensive and costs have been increasing steeply (extract 3 para 2) → higher costs of production means it may be hard for export of natural gas to be profitable despite the extra source of revenue for the firms.</li> </ul> <p><u>Households:</u></p> <ul style="list-style-type: none"> <li>- Households face higher prices → lowers consumer surplus</li> <li>- Pay higher prices for electricity bills → increase cost of living; less ability to spend on consumption of goods and services → fall in material SOL</li> <li>- Ev: impact more significant for lower income families as utility bills form a larger proportion of their expenditure → rising inequity</li> <li>- Domestically, higher COP for natural gas might result in some firms (car exporters) off-shoring, leaving for countries with low labour costs to reduce their COP to maintain/increase profitability ( Extract 1 para 3) → increase in layoffs → those working for these industries will suffer from unemployment and loss of income.</li> </ul> <p><u>Synthesis</u></p> <p>Based on trade theory, exports disadvantage domestic consumers (households and domestic firms) due to the rise in price (lose consumer surplus) but is advantageous to exporting firms (gain in producer surplus). Using DD/SS analysis, if the gain in producer surplus &gt; loss in consumer surplus and there is supposed to be a net gain in welfare → society as a whole gains. But the gas firms are gaining at expense of the</p>	

	consumers → rising Y inequity.											
	<p><u>Conclusion:</u></p> <ul style="list-style-type: none"><li>- Extent of impact on different party differs</li><li>- Gainers likely to be gas producing firms that are able to export gas to overseas market</li><li>- Domestic producers and consumers likely to be adversely affected, with those producers heavily reliant on natural gas, as well as lower-income consumers affected most.</li><li>- While society as a whole gains, there will be a fall in equity of distribution. The US govt would need to address this if it were to allow the export of natural gas.</li></ul>											
	<table><tr><th>Level</th><th>Descriptors</th></tr><tr><td>L3 6 - 7</td><td>Well-developed and balanced answer, analysing the impacts on different producers and consumers. Answers also well-supported by evidence.</td></tr><tr><td>L2 3 - 5</td><td>Able to provide well-explained answer but limited in scope, not covering the impact on both producers and consumer, as mentioned in the question.  OR  Covers scope but under-developed explanations (gaps in explanation) or lack evidence</td></tr><tr><td>L1 1 - 2</td><td>Answers largely inaccurate and theoretical, with little use of evidence from case materials;</td></tr><tr><td>E 1</td><td>Able to make reasoned conclusion, weighing the extent of the impacts on the various parties.</td></tr></table>	Level	Descriptors	L3 6 - 7	Well-developed and balanced answer, analysing the impacts on different producers and consumers. Answers also well-supported by evidence.	L2 3 - 5	Able to provide well-explained answer but limited in scope, not covering the impact on both producers and consumer, as mentioned in the question.  OR  Covers scope but under-developed explanations (gaps in explanation) or lack evidence	L1 1 - 2	Answers largely inaccurate and theoretical, with little use of evidence from case materials;	E 1	Able to make reasoned conclusion, weighing the extent of the impacts on the various parties.	
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	Answers should not focus on the macroeconomic effects. Max 1m given for the explanation on the macroeconomic effects e.g. on households (effect on income and jobs)											
(e)	Assuming that you are an economist, discuss the extent to which the increased availability of natural gas can address the problem of global warming.	[10]										
	<p><u>Introduction</u></p> <p>Global warming → market failure</p> <p>Natural gas is an alternative fossil fuel to coal and switching to natural gas can help to reduce greenhouse emissions, reducing global warming. The extent of which it can address the problem depends on the benefits vs the costs of switching to natural gas.</p> <p><u>Explain market failure problem</u></p>											

	<ul style="list-style-type: none"> <li>- There is market failure because of the presence of negative externalities. Production of goods and services release greenhouse gases brings about global warming which affects third parties, other than the producers and consumers in the market. Global warming results in melting of ice caps, increasing flooding. It also disrupts ecosystems, causing animal species to become extinct.</li> <li>- The presence of negative externalities will cause a divergence in the cost curves, where <math>MSC &gt; MPC</math>. Assuming no externalities in consumption, <math>MPB = MSB</math>. When left to the free market, producers only care about the individual cost and benefits, and hence market equilibrium is where <math>MPB = MPC</math>. Society takes into account all the costs and benefits to all individuals, and hence social equilibrium is where <math>MSC = MSB</math>. There is thus overproduction of goods and services → allocative inefficiency → Welfare loss to society.</li> </ul> <p><u>Thesis: Increased availability of natural gas helps to address the problem of global warming.</u></p> <ul style="list-style-type: none"> <li>- Natural gas is an alternative fossil fuel to coal, which releases much lesser amounts of carbon dioxide as compared to coal, with carbon dioxide being the main gas contributing to global warming. The switch to natural gas has helped to reduce carbon-dioxide side emissions from the energy sector, reducing global warming, and hence the market failure problem. Evidence: “carbon-dioxide emissions from the energy sector sank to lowest”. From figures 2 and 3, natural gas is one of the main gases being used in many of the key sources of greenhouse gas emissions, hence switching to natural gas will help to reduce greenhouse gas emissions significantly.</li> <li>- While the extraction of natural gas produce methane, which also harms the environment, firms can reduce the emissions by employing “a range of technologies” to reduce amount of emissions Ev: costly to implement technologies and firms may lack the incentive to do so as the benefits to them may be limited.</li> </ul> <p><u>Anti-thesis:</u></p> <p><u>Increased availability of natural gas might not address the problem of global warming</u></p> <ul style="list-style-type: none"> <li>- “Extraction of natural gas from shale rock releases methane, a potent greenhouse gas → offsetting the benefits from lower carbon pollution from using natural gas → Ev: while there is evidence that methane leakage rates about 3% and may seem to be not as serious, it’s just an estimate and it’s difficult to verify the exact amount of leakage</li> <li>- Ultimately, natural gas is still a fossil fuel and will still release carbon dioxide when burned – still leads to carbon emissions, polluting environment. Merely slowing down the process of global warming, not tackling the root of problem by reducing emissions – should instead focus more on policies that reduce emissions → Ev: “studies have shown that replacing plants with natural gas would do little to slow global warming”</li> <li>- Switching to an alternative fuel like natural gas might not address the root of the problem as the negative externalities is still not internalised, i.e. the problem is that producers and users of energy don’t factor in the MEC of their production and consumption of dirty fuel in their decision making, leading to over production/consumption and hence the problem of global warming. Effective tackling of the problem requires measures that would make the parties concerned internalise the externality concerned, even in the case of</li> </ul>
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	<p>natural gas, which although causes less pollution, still contributes some pollution. As such, more targeted policy like carbon taxes, which help to reduce the amount of emissions through internalising the externalities by increasing the cost of production, might be more useful.</p> <p>E.g. - According to figure 2, transport contributes 28% of greenhouse gas emissions while figure 2 indicates that petrol, a dirty fuel, is the largest source of energy for transportation. This could be because a petrol powered car is cheaper than one powered by natural gas. Some policy incentive would be needed to get car users to switch to gas-powered cars.</p> <ul style="list-style-type: none"> <li>- Given that natural gas is still a non-renewable source, its supply might be limited and may not be sustainable to rely on it to address the global warming problem. Renewable sources of energy like wind, solar and nuclear power are better alternatives as not only are they renewable, they also release negligible amount of carbon emissions and hence will be more effective in reducing the greenhouse effect as compared to using natural gas. <ul style="list-style-type: none"> <li>➔ Ev: From figure 3, currently the use of nuclear and renewable energy already low – increased availability and use of natural gas might further deter efforts to look for more sustainable alternatives for the longer-term</li> <li>➔ Ev: However, renewable sources of energy like wind, solar and nuclear, are typically more costly and hence firms have less incentive to invest in these alternatives. Also, given the budget deficit that US faces, should the government need to co-invest or provide subsidies to incentivise firms to invest in such technologies, the government's budget deficit might worsen - "constraints of money and politics"</li> </ul> </li> </ul> <p><u>Synthesis</u></p> <ul style="list-style-type: none"> <li>- Increasing the availability and hence usage of natural gas has proved to be effective in reducing greenhouse gases.</li> <li>- However, it is likely that natural gas still has only a "modest role" to play because ultimately it is still a fossil fuel that emits greenhouse gases and will still pollute environment, and is thus also not a sustainable measure for the longer term.</li> </ul> <p><u>Conclusion</u></p> <ul style="list-style-type: none"> <li>- In the shorter term, the role of natural gas may be more significant given the money and political constraints of alternative sources of renewable energy</li> <li>- Switching to natural gas only helps to slow down the global warming process. Hence, natural gas thus plays the role as a "bridge fuel" to facilitate the long run switch to cleaner sources of energy.</li> <li>- In addition, it does not solve the root of the market failure problem as negative externalities are still not factored into the consumption and production processes and hence, other forms of government intervention would be necessary.</li> <li>- In the longer-term, it is not possible to depend entirely on switching to natural gas to reduce global warming. Ultimately, renewable natural sources of energy with negligible emissions will still be a better option to reduce global warming in the long run.</li> </ul>	
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	Level	Descriptors		
	L3 6 - 8	Well-developed and balanced answer that demonstrates sound application of theory and well-supported by evidence. Recognises the limitations of using natural gas and there are other better options or policies.		
	L2 3 - 5	Able to provide well-explained but one-sided argument or balanced argument but under-developed explanations (gaps in explanation), with some use of evidence.		
	L1 1 - 2	Answer largely theoretical, with little evidence from the case materials. Largely irrelevant answers which focuses on explaining the market failure problem.		
	E 1 - 2	Able to come to a conclusion with a reasoned judgement. Able to recognise that the switch to natural gas does not solve the root of the market failure problem and is not a long term solution to the problem of global warming.		

## Question 2

ai)	<p><b>Describe the trend in the current account balance of Spain between 2010 and 2012.</b></p> <p>Answer: The current account balance of Spain is in deficit throughout the entire period of 2010 – 2012 (1) but the current account balance has been improving every year (1) or deficit has reduced. (1)</p>	2m
aii)	<p><b>Explain a possible reason for the changes in Spain's current account balance from 2010 to 2012.</b></p> <p>Answer: Current account balance has been improving and it could be due to increase in the export revenue or a decrease in the import expenditure.</p> <p>Import expenditure could be falling due to higher unemployment or falling income given the negative growth in 2010 and 2012 (Table 1). (1) With less jobs and income, the purchasing power of the Spanish consumers will fall and as such they would have to cut down on their spending on goods and services which includes imports. This will lead to lesser imports demanded and a reduction in the total import expenditure of the nation. (1)</p> <p>OR Export revenue could be rising due to the falling value of the Euro (1). (Table2) With a lower Euro value, the amount of foreign currency that foreign consumers have to pay for the Spanish goods and services will fall. With Spanish goods and services now being relatively cheaper to foreigners, they will likely increase their consumption and increase the total export revenue of the country. (1)</p>	2m
b)	<p><b>Using the data, explain whether there was an improvement in the average standard of living of the residents of Germany in 2012.</b></p> <p>Standard of living is usually measured from a material and non-material perspective. Growth in real GDP leads to higher purchasing power. (1) Lower unemployment rate = more jobs available so more income hence material SOL improved (1) But this is assuming the population size stays the same. If the rate of the population increase is faster than the growth in real GDP, there would be a fall in the average material standard of living instead. (1) Furthermore, we are unable to determine the changes in the non-material SOL from given data and thus cannot say for certain if there is an overall improvement in the average material and non-material SOL in 2012 (1)</p>	4m
c)	<p><b>Using the AD-AS model, explain how austerity measures may have deepened the recession in the EU.</b></p> <p>Answer: Austerity measures include reduction in government spending and raising taxes. Public sector and wages are reduced as well as mentioned in Extract 5. (1m)</p> <ul style="list-style-type: none"> <li>- Cut in wages reduces household's income thus purchasing power drops and leading to a fall in consumption.</li> <li>- Raising taxes reduces disposable income and post-tax profits for consumers and firms respectively leading to a fall in consumption and investment. The resultant fall in AD impedes economic growth. Cutting government spending via public sector organisation will reduce AD as well. (2m)</li> </ul>	4m

	<ul style="list-style-type: none"> <li>- Since C, I and G falls, AD falls and National income falls via multiplier. As National income falls, government ends up collecting less tax revenue and it means government spending is cut further. (1m)</li> <li>- All these leads up to further fall in AD thus national income.</li> </ul> <p>Austerity measure- 1m Link to AD – 1m Link to national income with multiplier – 2m</p>	
d)	<p><b>Using the data, discuss whether EU should implement protectionism against China.</b></p> <p>Answer: Protectionism takes some of these forms - restricting imports by quotas or raising tariffs or currency devaluation. Protectionism is chosen as a measure to tackle the problems of recession.</p> <p>Thesis : Yes, EU should implement protectionism on China</p> <ul style="list-style-type: none"> <li>- Based on Extract 8, it will seem like EU is countering dumping from China where China was accused of selling their solar panels at prices below their marginal cost. For EU to impose anti-dumping measures is to bring China's selling price in line with domestic prices. This will help EU's domestic producers from being wiped out by unfair competition from China.</li> <li>- Given that unemployment rate is high in most Eurozone countries like Spain (Table 1), protectionism helps to protect jobs in their domestic economy as prevention of imports will not only reduce import expenditure thus raising AD but also to prevent further cuts in domestic employment level in times of recession.</li> <li>- To temporarily reduce current account deficit (Table 1: Spain's current account deficit). Imposing protectionism will help cut foreign import expenditure and thus lessen the foreign exchange outflow and help to reduce the current account deficit in some of these Eurozone countries.</li> </ul> <p>Anti- thesis: No, EU shouldn't impose protectionism on China</p> <ul style="list-style-type: none"> <li>- However, based on Extract 8, it may suggest that by accusing China of dumping, it could be a case of using it as a disguise to protect inefficient industries in EU. After all, from the same extract, it is mentioned that China is developing better products with advancement in technology or China simply have comparative advantage in certain products based on different factor endowment so for EU to resort to protectionism may not solve its root problem in its goods market.</li> <li>- This may invite retaliation from China and this will further shrink export market in EU; resulting in loss of demand for export from EU, worsening the recession. From Extract 8, it can be inferred that since China is increasingly an important trade partner, this will have dire consequences on EU's growth.</li> <li>- Extract 8, "China is the EU's biggest source of imports by far..." By imposing protectionism would mean that factor inputs will be more expensive for EU producers who still depend on China for raw materials and imported inputs. This will add to the higher production cost for them and that would make their own domestic goods less price competitive.</li> <li>- Other reasons: Poorer innovation and quality can result in loss of export competitiveness.</li> </ul> <p><b>Conclusion:</b> Overall, there may be acceptable economic benefits for imposing protectionism on China given the current recession in Europe but more as a temporary measure rather than long term measure. In the long run, protectionism reduces efficiency, growth, employment and real income</p>	8m



	<p>hence the cost of protectionism is much higher than the benefits of doing so.</p> <p>Mark scheme</p> <table border="1"> <tr> <td>L3</td><td>Well developed and balanced explanation with reference to extracts.</td><td>6-7m</td></tr> <tr> <td>L2</td><td>Able to provide well explained but one sided argument or balanced argument but under developed explanations with lack of evidence</td><td>3-5m</td></tr> <tr> <td>L1</td><td>Able to provide theoretical reasons or limited reasons for or against protectionism.</td><td>1-2m</td></tr> <tr> <td>E1</td><td>Able to make reasoned conclusion</td><td>+1 m</td></tr> </table>	L3	Well developed and balanced explanation with reference to extracts.	6-7m	L2	Able to provide well explained but one sided argument or balanced argument but under developed explanations with lack of evidence	3-5m	L1	Able to provide theoretical reasons or limited reasons for or against protectionism.	1-2m	E1	Able to make reasoned conclusion	+1 m	
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e)	<p><b>Discuss whether Spain should adopt similar measures as Germany to address her macroeconomic problems.</b></p> <p>Answer:</p> <ul style="list-style-type: none"> <li>Spain's macroeconomic problems primarily include</li> <li>negative GDP growth, High unemployment rates and a current account deficit as seen in Table 1.</li> <li>Other issues in Spain: Rigid wage system, lack of incentive to train workers, losing competitiveness. ( Extract 6)</li> </ul> <p><u>Thesis – Germany's measure can address Spain's problems. (Extract 3)</u></p> <p><u>Measure 1</u></p> <p>1) One measure that Spain could learn from Germany would be to <u>cut the wages and working hours</u> of the workers during the economic downturn. As demand for goods and services would decline during a downturn, firms would likely reduce the number of workers hired when output falls, resulting in higher unemployment. By reducing the wages and the number of hours worked by each worker, the firm would be able to afford to continue hiring the same number of workers while producing a lower amount. This would ensure that current workers would still be employed despite the downturn.</p> <p><u>Anti – thesis – Evaluation of measure 1</u></p> <p>1) Cutting the wages and hours of workers in Spain is less likely to succeed due to the inflexible labour market that currently exists in the country. (Extract 6) Spanish workers might be more resistant to such cuts as seen observed from the wage rigidity in the country. If such measures are forced on to them, workers might even go on strikes which would further adversely affect the economic conditions.</p> <p><u>Measure 2</u></p> <p>Another measure that Spain could adopt would be to <u>improve the education and training of their workforce</u>. This would ensure that the labour force would have the relevant skills for expanding industries (Job friendly skills) and reduce structural unemployment. In addition, with higher skills, the country would also be able to attract greater foreign direct investments in high end industries that would create jobs and increase economic growth. As the workers improve their skills and productivity, this would increase the productive capacity and hence potential growth of the country. With a lower cost of production, this might also increase the price competitiveness of Spain's exports and lead to an improvement in their BOP and subsequently EG.</p> <p><u>Anti – thesis – Evaluation of measure 2</u></p> <p>The limitation of trying to improve the education and training system is that it might take some time before the effects can be seen. To fully educate or train people will not happen overnight and years may be required before the labour force is equipped with the required skills. In addition, given the</p>	10m												

austerity measures in place, the government might not be able to fund such changes in the economy. (Extract 5: One of the measures is the €6.5 billion cut in public services)

### Measure 3

One of the main drivers of German growth comes from their high quality exports (German products are in demand not because they are the cheapest but because they are the best) to booming economies such as China and Russia. As such, Spain could offer incentives or provide subsidies that would encourage producers to conduct more research and developments to produce better quality goods that would be more competitive in the world market. This could result in an increase in exports of Spain and lead to more jobs created in the export industry. As more workers are hired and the income increases, there will be a multiplier effect resulting in further improvements in employment and economic growth.

### Anti – thesis – Evaluation of measure 3

Investments in Research and Developments to improve the products will take a long time before any results can be observed. Given the dynamic nature of the business world, in the time for Spain to carry out the R&D, other countries/businesses might have already developed even better products that would adversely affect the export competitiveness of the Spanish goods. Even with all the resources incurred, there is no guarantee that better quality products can be developed and help improve the Spanish economy. These resources could have been used in other areas to greater effect.

### Conclusion

If Germany's measures could be successfully implemented in Spain, there is a high chance that the country's macroeconomic problems could be solved. Nonetheless, with the current state of the Spanish economy and the various problems that she faces, it would be highly unlikely the same measures would be effective. The most likely measure that would make a difference in the short term would definitely be the cutting of wages and hours worked but the government would need to make harsh but necessary laws if it was to succeed.

Level	Descriptors	Marks
L1	Incomplete explanation of the workings of the measures	1-3m
L2	Detailed analysis of how the measures can address Spain's macroeconomic problems and some attempt at assessing the effectiveness.	4-6m
L3	Clear evaluation of the possible measures taking into account the characteristics of the Spanish economy.	7-8m
E1	Mainly unexplained judgment	2m
E2	Judgment based on analysis; good effort at substantiation	1m