PJC 2016 H2 Paper 1 Prelim Exam Suggested Answers

Question 1: Supermarket Shake Up

(a)	**(i)**	Explain how real GDP growth can be calculated from the data in Table 1.	**[1]**
	Suggested answer**:** Real GDP growth is calculated by subtracting the inflation rate from nominal GDP growth. **Real GDP growth = Nominal GDP growth – Inflation Rate**		
(a)	**(ii)**	State how the level of real GDP has changed from 2011 to 2013.	**[1]**
	Suggested answer**:** The level of real GDP has **fallen** **/** **decreased** from 2011 to 2013.		
(b)	Account for the surge in Aldi's sales revenue using the concepts of price and income elasticity of demand.		**[4]**
	Suggested answer**:** **Explanation of how PED accounts for rising Revenue 2 marks** Aldi's groceries (own label, etc) are price elastic in demand (PED>1) due to the availability substitutes / high proportion of income spent on groceries as many consumers have low income during recession / austerity. As Aldi cuts prices, quantity demanded rises more than proportionately thus total revenue (PXQ) rises and surges. **Explanation of how YED accounts for rising Revenue 2 marks** The economic downturn shows incomes are falling, and Aldi's goods are inferior goods (own label), thus YED<0 and fall in income leads to rise in demand/Qty demanded, this boosts total revenue too (assuming price remains constant).		
(c)	Comment on whether the pricing behavior of firms in the supermarket price war is in alignment to traditional economic theory.		**[6]**
	Suggested answer: The firms in the supermarket industry operate in a competitive oligopolistic market structure. There are few dominant firms in the market and each is interdependence in their behavior to the other. According to the traditional economic theory on price rigidity, prices in the market tend to be rigid. As a result, firms in a competitive oligopoly market tend to compete via non-price competition than price competition. According to the theory of price rigidity, when a firm increases his price, his rival firms will not follow suit. This will cause the firm to have a fall in quantity demanded by more than proportionate and his total revenue will fall. Thus, the profit maximizing firm will choose not increase his price. In the same way, if the firm lowers his price, his rival firms will also reduce their prices. Consequently, the firm will have a rise in his quantity demanded by less than proportionate and his total revenue will fall. Thus, the firm will again choose not to reduce his price. This interdependence behavior of the competitive oligopoly explains why firms in this industry do not usually compete via prices. However, as seen in the extract 1, when Aldi reduced its price, the other supermarkets like Tesco, Morrisons, Asda and Sainsbury also cut their prices. This is not aligned with price rigidity as espouses in the theory. However, <u>in the short run</u>, firms may occasionally choose to compete using price as they are maximizing market share (for long term gain) at the expense of their short term profits.		

	The firms may be willing to earn subnormal profits in the short run as long as they are able to protect / expand their customer base. Overtime, the smaller supermarkets that are not able to survive the price competition will exit the industry, leaving the entire market to the few surviving supermarkets. By then, the supermarket can raise their prices and make supernormal profits again. The price war can be considered to be short term adjustments by firms. In the long run, the behavior of the firm is still in alignment with the price rigidity theory as price war is unsustainable. Price will remain rigid in the long run.	
(d)	Discuss the factors that supermarkets should consider in deciding whether to develop their online sales presence.	**[8]**
	Suggested Answer	
	All supermarkets seek to maximize their profits (i.e. total revenue - total costs). When deciding whether to develop their online sale presence, the supermarkets will weigh their revenue gain against the cost incurred, taking into account any constraints they may face (eg in terms of fundings) and any unintended consequence from the external environment of the firm.	
	By having an online sales presence, supermarkets can increase their market share by reaching out to customers not in the proximity of their brick-and-motor stores. Sales demand can also be from overseas, allowing potential for rapid growth, rising the supermarket's demand in the future. AR and MR both shift rightwards, increase total revenue. In addition, by leveraging on technology, supermarket gain insights into their customer's needs and better cater their product ranges to the customers. Customers can select their groceries anytime at any place and compare prices for different brands. This improved shopping experience can increase customers' loyalty to the supermarket involved, reducing the supermarket's price elasticity of demand(PED), reducing its cross elasticity of demand (CED)with respect to a rival supermarket and increase demand for the supermarket. When PED is reduced, the supermarket can increase the prices of its groceries, quantity demanded will fall less than proportionately and total revenue can rise. With a fall in CED, the supermarket will experience a smaller fall in the demand for its groceries by less than proportionate when the rival supermarket reduces its price. This is especially important in times of future price war situations. In the context of falling income, customers in UK are shifting to online stores in an attempt to buy possible cheaper goods available. The revolution in food retailing has seen shifted taste and preference of customers towards shopping online. Supermarket that fail to develop their online sale presence may lose these customers that have shift their shopping online eventually. Thus, in an attempt to protect their market share and reduce the potential fall in total revenue, supermarkets have little choice but to start an online presence. However, there is uncertainty that the investment to build an online presence can increase total revenue. Online presence intensify competition for the supermarket as their competitors now stretch to any online grocery stores in the world or even the third parties selling groceries. In addition, the increase in sales revenue from the online stores can stem from a fall sales from the same group of customers from the brick-and-motor stores. Thus, demand and total revenue may not rise with an additional channel for sales. By having online presence, the supermarkets can reduce their fixed and variable costs as supermarkets can reduce their fixed and variable costs from expensive retail premises and customer-facing staff. In addition, supermarket can utilise its existing warehouse, logistic systems and related personnel to enjoy technical economies of scale and reduce its average cost of production. This allows the supermarket to move along the falling arm of its LRAC.	

	With an addition sales channel, there could be problems arising in communication and overstaffing problem in some departments. This will cause diseconomies of scale and increase the average cost. The eventual impact on the average costs depends largely on how the supermarket reorganizes itself with the new department on online sales. In addition, supermarket will incur additional costs related to having a new online sale platform. Some of these may include costs in starting an internet platform and security systems etc. In the context of falling profits for many years, supermarket like Morrison may have problem coming up with these additional funds to invest in the online presence. In deciding if the supermarket should develop their online sales presence, each supermarket has to weigh its revenue and cost advantages and disadvantages of this decision against the constraints and unintended consequences. The failure to move in tandem with the online shopping trend will mean a huge fall in the supermarket demand in the long run. The possible reaction from rival firms to develop their online platforms can also intensify the overall competition online, reducing profitability of the move to invest online overtime. These factors with long term repercussion tend to be more important. In addition, the development of online sales platform should be seen in the overall larger non-price strategy of the supermarket. There are other strategies that the firm can employ in the short run to increase their profits while slowly develop their online sale platform when their funding improve.	
(e)	Discuss whether the UK government should be concerned about the supermarket price war.	**[10]**
	Suggested answer**:** The UK government has microeconomic aims of equity and efficiency as well as macroeconomic aims of sustained economic growth, low unemployment, low inflation and healthy balance of payments. In this context, the price war has impacts on **equity**, **efficiency**, **employment** and **inflation** and it may be a concern in some areas. In terms of **equity** and **inflation**, the supermarket price war would bring about benefits to UK consumers, thus it is not a concern. The price war results in falling prices as Aldi cuts prices, and her rivals follow. Overall, the prices of groceries in UK will fall, and this reduces the **cost of living**, making groceries more affordable for everyone in the UK, especially benefitting the **low income groups** or unemployed who spend a large proportion of income on groceries / food which is a basic necessity. The fall in prices increase consumer welfare and material standard of living for all UK residents as they will now be able to afford more groceries with their income. The **inflation rate** can be kept low as food price inflation is controlled, and this is beneficial especially since the economy is starting to have economic recovery and rising national incomes from 2014 onward and inflation rates are likely to rise in future. In the long run, this may be of concern to the government. The price war causes the large supermarkets to face subnormal profits. If Aldi and Lidi manage to drive out all other supermarkets, the market will become a duopoly or monopoly. Aldi might then be able to raise prices and exploit consumers as this scenario means they have no competitors to offer alternatives to consumers. The grocery market would become more allocative inefficient as prices rise (higher than MC) and quantity falls under a monopoly. With less supermarkets in the UK, there would be less choices for consumers as well since the variety of products in Aldi is much less than the variety of products in large supermarkets (2500 vs 40000). The price war is a concern as it may cause rising **unemployment**.	

	Large supermarkets are closing down numerous supermarket stores due to **subnormal profits** as a result of the price war. This means many supermarket workers will become unemployed. Also, large supermarkets are reducing costs by forcing food producers to sell their food products more cheaply and some food producers who are unable to do so lose sales and **shut down**, resulting in rising unemployment too. The **unemployment rate** is quite high in the UK and it would be a concern as more people would need **unemployment benefits** and this puts a strain on the **government budget**. This is why the UK government appointed a grocery code adjudicator to manage the behavior of supermarkets to ensure food producers can survive. However, this may not be a concern as the **overall UK unemployment rate actually fell (7.5% to 6.1%)** and across the country, less firms have been shutting down overall. Furthermore, food producers are just a **small proportion of the whole UK employment (20% employment in industry and agriculture**). The alternative perspective to consider is that this market (food producers) may have several **productive inefficient** firms, with higher **average costs** than the efficient firms, thus the supermarket price war forces inefficient firms to shut down, and only the efficient firms that produce on the **LRAC** and produce with large scale at lowest average costs can survive. This frees up land and labour resources to be channeled to other sectors and this is beneficial to the UK as it improves overall levels of **efficiency**. The price war improves equity and inflation in the short run, but in the long run, the government must monitor the behavior of Aldi to ensure prices are not raised. Unemployment as a whole (youth and overall) is falling even with some food producers and supermarkets shutting down. If the economy continues to grow and jobs are created in other sectors to take the unemployed workers from supermarkets and food producers, it may, overall be beneficial to the UK instead. Hence, overall, the UK government should not be concerned, as the benefits currently outweigh the costs.

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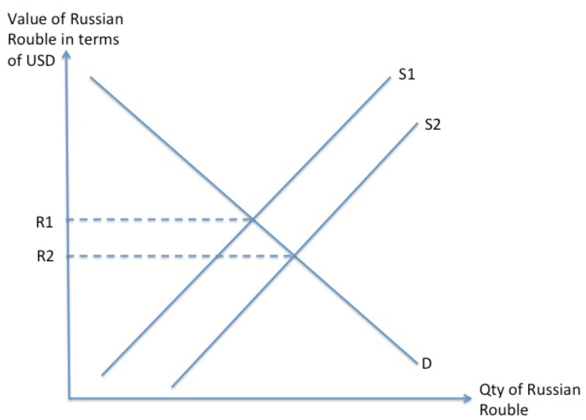
Question 2: Troubles in Brazil and Russia

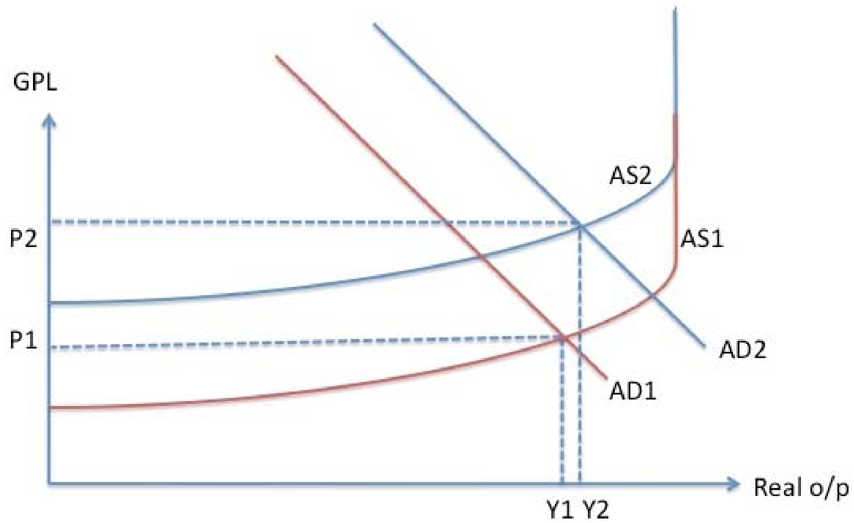
(a)	**(i)**	**Compare the change in Brazil's current account balance with that of Russia Federation between 2010 and 2014.**	**[2]**
	Suggested answer**:** Current account balance for both Brazil and Russia Federation worsen from 2010 to 2014. However, Russia's current account balance remained in surplus while Brazil was in deficit.		
(a)	**(ii)**	**Explain how the change in Brazil's current account balance might affect its growth rate as shown in Table 2.**	**[2]**
	Suggested answer**:** As Brazil's current account balance worsens during the period, it might indicate that net exports fell. As net export is a component of AD, AD would decrease. At the same time, other components of AD (such as C, I or G) might have risen during this period hence real NY would increase at a decreasing rate, resulting in falling growth rates from 2010 to 2014.		
(b)	**Explain how raising interest rates would 'crimp inflation'.**		**[3]**
	Suggested answer**:** Raising interest rate means a higher cost of borrowing and at the same expected rate of returns, investment projects will appear less profitable. Hence investment falls. Higher interest rates mean higher returns to savings. The opportunity cost of current consumption increases and households increase savings and reduce consumption. When the economy is facing demand-pull inflation, a fall in AD caused by a fall in C and I and thus decreases GPL. Hence, an increase in interest rates can control demand-pull inflation.		
(c)	**(i)**	**How does the value of the Russian Rouble in 2014 compare with its value in 2010?**	**[1]**
	Suggested answer**:** The Russian Rouble depreciated.		
(c)	**(ii)**	**With the help of a supply and demand diagram, explain how the end of Quantitative Easing in US would account for the change in the value of Russia Rouble.**	**[4]**
	Suggested answer**:** Due to the end of quantitative easing, interest rates in US would increase (extract 5). Due to rise in IR in the US, it would attract inflow of short-term capital. This would meant an outflow of short-term capital from Emerging Economies such as Russia as IR in emerging economies are lower and thus deemed to have lower returns from the short term capital investments. As short-term capital move out of Russia, it would lead to a rise in SS of Russian Rouble.  As shown in the diagram above, increase in SS of Russian Rouble from S1 to S2 would		

	lead to a fall in value of Russian Rouble from R1 to R2. Thus end of Quantitative easing in US would cause a depreciation of the Russian Rouble.	
(d)	**IMF chief Christine Lagarde cautioned the US to be "mindful" of the impact of ending its QE on emerging economies, although she also said that emerging economies should "mind the shop at home".** **To what extent is the end of QE accountable for the economic performance of Brazil and Russia?**	**[8]**

Suggested answer**:**

The end of QE has caused currencies of both Brazil and Russia to depreciate. This has thus resulted in problems such as high inflation and slow economic growth in both Brazil and Russia.

With a weaker currency, prices of imports increases causing cost of production to increase sharply. As emerging economies such as Brazil and Russia relies on import of capital goods and consumer goods to a large extent, the impact on cost of living and and cost of production for firms would be significant.



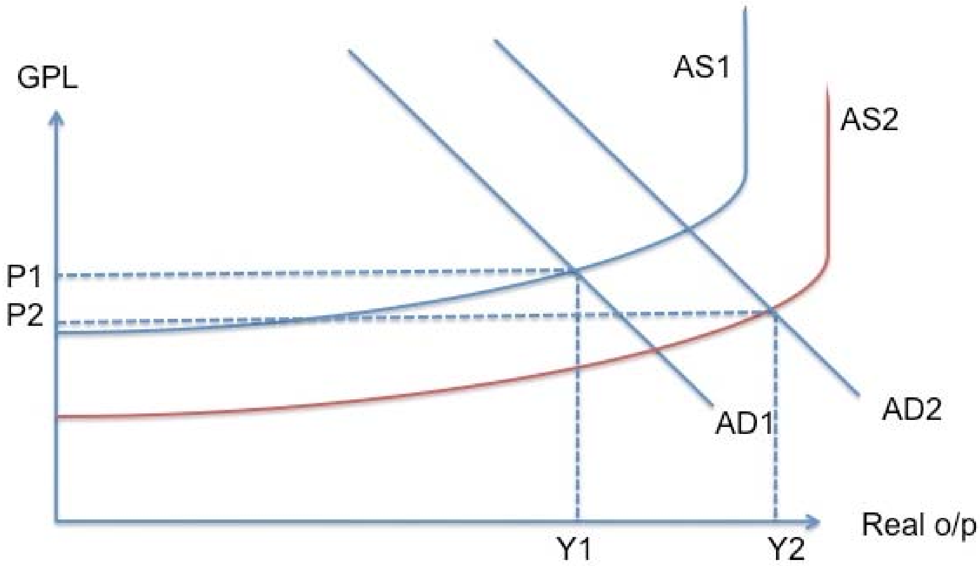
As such, the AS curve shift upwards from AS1 to AS2, resulting in cost-push inflation as GPL increase from P1 to P2. This is as shown in table 3 where inflation rates for both countries rose to 6.3% and 7.8% respectively in 2014.

Furthermore, items exported by Brazil and Russia are largely raw materials or commodities *(extract 7: …Brazil sells—iron ore, petroleum, sugar and soyabean…It [Russia] is one of the world's biggest producers of oil and natural gas.)* that are price inelastic in demand. Hence when Real and Rouble depreciated due to end of QE, fall in price of exports will cause a less than proportionate fall in quantity demand for exports. As such, the value of X for both Russia and Brazil decreases. As demand for imports are price elastic, fall in price of imports will cause a more than proportionate rise in quantity demanded for imports. As such, value of M for both Russia and Brazil increases. This would thus account for the deteriorating current account balance for both Russia and Brazil as shown in table 4 and possibly a deteriorating BOP assuming other factors remains unchanged.

Furthermore, assuming that other components of AD rose which supersedes the effects of falling X by a small extent, AD would rose from AD1 to AD2 and thus resulting in slow growth from Y1 to Y2. This is also as shown in table 2 where growth for both Brazil and Russia fell to 0.1% and 0.7% respectively in 2014. Hence, end of QE could be accountable for the economic performance of Brazil and Russia.

However, end of QE should not be solely responsible for the economic performance for

	Brazil and Russia. There were other factors as detailed in extract 7 and 8 that suggest that other reasons were more prominent in causing poor economic performance. In extract 7 *(Some of their pain comes from abroad. Brazil's main trading partners are slowing (China) and stagnant (the Euro area). Not only are export volumes down… global demand falters. Russia is feeling the slowdown too)*, it was mentioned that demand for X from Brazil and Russia are falling due to falling NY of trading partners. Brazil's main trading partner such as China and Euro area are suffering with slow and stagnant growth thus demand for commodities and raw materials in manufacturing goods and services would fall. Furthermore, demand for crude oil would also fall as production slows down. As such, demand for Brazil's and Russia's X fall, assuming that other components of AD rose which supersedes the effects of falling X by a small extent, AD would rose by small extent, resulting in slow growth. Furthermore, retaliation by Russia after sanctions by US and EU has caused rising inflation in Russia. Due to import tariffs on import goods of US and EU, cost of production rose as Russia depends on these developed countries for import of machineries and other raw materials for production. This would thus result in AS curve to shift upwards, increasing cost-push inflation. Lastly, efforts by both Brazil and Russia government to prevent further depreciation in the currency values and inflation have resulted in rising interest rates which further slows down economic growth. While rising interest rates will reduce outflow of short term capital which thus reduce rise in SS of Real and Rouble currencies and hence reducing further depreciation of currency values and cost-push inflation, rising interest rates would also reduce C and I. As rising interest rates would increase cost of borrowing for both consumers and firms, Consumers and firms are less willing and able to borrow from banks to spend on big-ticket items or invest in capital goods. As such, C and I would fall, reducing the rise in AD which thus slows down growth. In conclusion, the end of QE should not be accountable for the economic performance of both Russia and Brazil. While end of QE have resulted in depreciation of currencies in both economies, there were other reasons that were more compelling in accounting for the economic performance of both countries. In fact, falling GDP growth rates, trend of rising inflation, worsening of the current account balance and exchange rates started in 2010 which was 4 years before the announcement of an end of QE. This suggest that there were other issues that Brazil and Russia are suffering from that causes the poor economic performances.	
(e)	**As an economic advisor to Brazil, what options would you recommend to the government as possible responses to achieve sustained economic growth? Justify your answer.**	**[10]**
	<u>Suggested answer</u>**:** From extract 7, Brazil is currently suffering from slow growth due to falling demand for raw materials and commodities from its major trading partners. The country is also suffering from internal structural issues such as poor infrastructure, high and burdensome tax systems, red tape and rigid labour laws as stated in extract 8. Furthermore, Brazil is laden with rising budget deficit which therefore limits that use of expansionary fiscal policy and in efforts to prevent further depreciation of its currency and rising inflation, have raised interest rates. While there is little that the government can do in boosting economic growth through demand management policies, the Brazil government should deployment market oriented supply side policies to achieve sustained economic growth. Through market oriented supply side policies such as relaxing the rules and regulations on investments. Such methods of deregulation would open up market to allow more private investments to be	

	able to invest easily in the Brazil. Reducing corporate taxes would encourage greater investments due to greater retained profits. This would also encourage inflow of FDI in view of the higher after tax profits. Furthermore, such efforts would also encourage private investments on infrastructure development which would boost efficiency in transportation networks and reduce cost of production for firms. Market oriented supply side policies through relaxation of labour laws enable the labour market to work freely and thus keeps wages low. This would thus reduce cost of production for firms, attracting investments into the economy.  As shown above, AS curve would shift out from AS1 and AS2 as increase in investments would raise both the production capacity as well as the productivity of workers. AD would also increase from AD1 to AD2. Hence with both AD and AS shifting out, sustained economic growth can be achieved. Though reducing taxation might worsen the budget deficit which erodes confidence in the economy, Brazil may choose to cut government expenditures on areas that does not boost growth such as spending on defense and grants or subsidies on inefficient and incompetent firms. Furthermore, with rising investments from domestic and foreign firms, government might be able to collect greater tax revenues eventually assuming that rise in profit made by firms supersedes the fall in corporate tax rates. Thus, budget deficit might not worsen after all. Furthermore, Brazil can adopt trade policies that would enable freer trade and to also diversify the trading partners that it have to gain greater stability and growth via its external sector. Greater trade liberalization will allow its domestic firms to trade sell more of its exports easily to the world. The increase in production would also mean domestic firms are able to reap economies of scale which thus lower cost of production, enhancing its cost competitiveness. This would lead to a rise in X from Brazil, increasing AD from AD1 to AD2. In addition, diversification of trading partners through negotiation of FTAs with other economies would help to reduce impact of fall in X of one nation/region on Brazil's exports. In conclusion, due to the multiple problems that Brazil is facing, there is limited scope in which Brazil can use its demand management policies. Instead, Brazil should focus in resolving the internal structural issues through Market oriented supply side policies in order to boost its attractiveness to FDIs and domestic firms to invest.

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