

WJEC GCE ECONOMICS

DELIVERING THE CONTENT

RESOURCES

**PRICE ANCHORING**

While traditional economics assumes that an individual provided with all the facts will respond rationally and make good business decisions, behavioural economics recognises that our brains, in some areas, are hardwired in ways that make us respond - often quite predictably - irrationally, and contrary to logical economic rules. Drawing on aspects of both psychology and economics, the operating assumption of behavioural economics is that cognitive biases often prevent people from making rational decisions, despite their best efforts. For the past few decades, behavioural economics has been largely considered a fringe discipline to standard traditional economics. Though practitioners of traditional economics have always reluctantly admitted that people may behave irrationally from time to time, they have tended to stick to their theoretical guns. They have argued that experiments conducted by behavioural economists and psychologists, albeit interesting, do not undercut rational models because they are carried out under controlled conditions and without the most important regulator of rational behaviour which is the competitive environment of the market.

Behaviourists use the term price anchoring to describe the basic human tendency to attribute too much importance to the first piece of information you receive when buying a product. If a second car dealer tells you the price of a car is £10,000, but then offers to sell it to you for £7,500, you will be convinced you are [getting a much better deal](http://blog.credit.com/2013/09/avoid-car-buying-gotchas/) than if he offered to sell it for £7,500 right at the start.  That first price given by the dealer, the £10,000, serves as an anchor — a first reference point. Every other price becomes an adjustment of that price.  Buyers can’t help but see the £7,500 offer as a £2,500 discount — hence this is a common tactic by car sales staff. Similarly department stores do this all the time, particularly with clothing. You see a £50 shirt on sale for £30 and think, "Wow, that's quite a deal." Of course, the store never intended to sell the shirt for £50. The plan all along was to charge £30.

A product is truly never "cheap" or "expensive"; it’s all relative. People love to compare when valuing products and having an anchor price allows them to do that. If you’re out shopping for a TV, you might look at two different models and compare their features and prices. One might be 50 inches and cost £1,000 while the other might be 48 inches and cost £600. In this case, you’ll probably think that the £600 TV offers the best value because you’re paying £400 less for a TV that’s only 2 inches smaller. That thought process is exactly what the retailer intended for you to deduce. They wanted the £1,000 TV to be an anchor so the £600 TV looked like a bargain in comparison.

**Keynesian v Neo-Classical Theory – Suggested Scheme of Work**

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| **Long run aggregate supply (LRAS)**  **Specification**   * **Understand that there are differences between Keynesian and Neo-Classical views on what the AS curve will look like in the long run** * **Explain the Neo-Classical view of the process through which an economy might adjust to long run equilibrium** * **Understand that Keynesian economists disagree with this process of adjustment because of issues such as inflexible factor markets (‘sticky wage’, etc.) and that, consequently, the LRAS function may not be vertical at the equilibrium level of output** | **Suggested Lesson Plans**  **Lessons 1-2**  Keynesian AS has probably been taught by this stage already. Therefore I also find it useful to draw a timeline of Economic Schools of Thought in order to pitch where Keynesian comes in the evolution of Economics, as an academic discipline, in relation to Classical (Adam Smith’s) Economics. You can find a good one here: <https://prezi.com/wg-1wpacu9qw/history-of-economic-thought-timeline/>. I think it worthwhile to emphasise that Classical economics predates Keynesian Economics by 150 years and also to recognise the international context (post 1929 Wall Street crash) that Keynes was writing in. In addition, I ask students to imagine what the economy is like in 1776 – no JSA, no trade unions and the context that Adam Smith was writing in.  Then, I will try to get them to work out the logic behind Neo-Classical AD/AS from microeconomic principles (perhaps even perfect competition) and introducing the concept of the SRAS schedule as derived from MC analysis. There is a worksheet attached that I use frequently for this particular topic. They key questions for discussion are: If D increases for output, what happens to (derived) D for labour? And their wages? And therefore costs of production for firms? Etc. …  In discussing LRAS, it is worthwhile drawing the links between LRAS and the PPF and vertical section of Keynesian AS (this will make the topic of ‘factors that shift LRAS’. Also, a discussion about the circumstances under which an economy might self-stabilise (perfect product and labour markets), and the obstacles which might exist in practice to such a process (trade union power, minimum wage, monopoly power in product markets and so on) is vital as this will form the basis for Keynesian v neoclassical debate. Often students will rail against neoclassical theory at this point saying it is not based in the real-world but a good answer to this is ‘do you think the economy would be better off if it did behave like this, and therefore do you think that is where we should try to get to?’. Neoclassical economics is the dominant form of economics used today and has the highest amount of adherents among economists and you can find some great Washington opinions here: <https://www.youtube.com/watch?v=OazUh0Ym8rc> (22mins in)  **Lesson 3**  Recapping and deepening knowledge of Neoclassical theory. I like to pose the questions about self-stabilisation from different angles: what if AD increases? What if there is a supply-side shock and oil prices increase? Again,  Then, students need to brainstorm ideas about how economic growth in a neo-classical world occurs – leading onto a discussion therefore about how LRAS shifts. Again, reference back to the PPF here is useful (quantity, quality (i.e. productivity) and efficiency of resources). Some students may be capable of coping with formulae such as Y=f(K,L,N) and discussion can extend from there.  Again, there are lots of videos that can be useful here:  <https://www.youtube.com/watch?v=Gc-LJ_3VbUA>  and anything by The Yes Men.  **Lesson 4**  This is the point at which to debate the relative merits of Keynesian Economics versus Neoclassical economics.  A good starting point is the Keynes-Hayek rap with printed lyrics so that students can follow. This is found here:  <https://www.youtube.com/watch?v=d0nERTFo-Sk>.  Normally, I get students to work out the point of the lyrics and what the terminology means. This is an excellent way of teasing out all of the detail of the two different theories. I write everything up on a whiteboard so there is record of all the differences of opinion between the two sides (sticky wages, budget deficit and national debt, broken window fallacy, time lags (long run we’re all dead), animal spirits).  There are also a number of humorous cartoons that can be used to dig out all of the nuance of theory.  At the end of all if this, I normally get the students to debate in pairs and then as a class to argue which school of thought they sympathise with the most.  **Lesson 5**  Depending on how Lesson 4 goes, you may wish to run a further lesson. In this lesson, you could provide students with data around Australia which has actually used Keynesian Economics extremely successfully since 2008. |

**Deflation resources overview**

This is designed as a group-based exercise; there are 4 main articles about deflation in Japan and the idea is to give one to each member of a group of 4. They read their article and feedback the main findings to the group so that collectively they can come up with answers to the following:

1. What is deflation?
2. How can deflation get started – two separate AD/AS diagrams to illustrate. What was the situation in Japan?
3. To what extent is deflation likely to be a bad thing? What was the problem in Japan? Think about Consumers, Firms, the government and workers.
4. How might deflation be stopped? Why hasn’t Japan been able to stop inflation – why is it difficult once inflation gets started?

A good clip is the one below – whether you would use it before the exercise as a warm-up or afterwards as a debrief probably depends on how able you think the groups are.

Good clip on deflation in Japan – 4 minutes:

<https://www.youtube.com/watch?v=HvppJ-MhE6A&app=desktop>

**What Japan can teach us about deflation**



After Japan's years of excess throughout the 1980s, when £100 taxi rides home after a night carousing through the ruinously expensive bars of the Ginza were a daily occurrence for many, the average Japanese was rather glad when deflation set in.

Greatly tempered by a shrinking national economy, job insecurity and contracting bonuses, Japanese still felt the burst of the bubble economy in 1990 which meant that their yen went further. It seemed to take several years for the effects to trickle down to people who were not high-flying bankers, real estate moguls or speculators.

But when deflation did bite, it bit hard.

For the eight years after 1990, Japan was caught in a deflationary spiral - with some economists suggesting that the same scenario might again be looming on the horizon in 2009.

The up-side was initially clear to see; car makers developed small and efficient cars, brewers developed beer with a higher malt content that sidestepped tax definitions and was therefore cheaper and the convenience store really came into its own.

"All of a sudden there was a convenience store on every street corner, selling everything that you could ever need and much cheaper than ever before," said financial analyst Hugh Ashton. "People suddenly had a more realistic appreciation of what something was worth and gone were the days of the Y200 (£1.40) banana."

It did not hurt that they were open around the clock. In tandem with this was the rise of stores that sold a vast range of goods - generally poorly made and essentially disposable - for Y100 (70p).

While these new consumer theme parks thrived, the old-fashioned mom-and-pop stores that had sustained local communities for generations but charged a couple of yen more than their new rivals quickly went out of business.

Retirees found that the real value of their hard-earned savings was rising, despite the fact that they were being held in bank acccounts with interest rates of less than one-tenth of a percent. But the change fostered a sense of unease in the public. Employees with blue-chip firms became concerned when annual pay rises that they had taken for granted failed to materialise or when the twice yearly bonuses, generally of three months' pay, were reduced to two months. And then to one month.

The desire to spend dried up as well and, instead of putting their savings in banks that began to show an alarming tendency to go bust, people literally began to stash their life savings beneath the futon. Even today, stories regularly appear in the national press of a demolition team knocking down an old building and coming across plastic bags stuffed with Y10,000 notes.

In the property market, prices declined dramatically at the same time as rents went down, leaving home-owners unable to move house and people with investment in property losing money. "Initially it was good," says a banker who lived through what Japan refers to as its "lost decade."

"People welcomed lower prices and a new array of goods that were suddenly available. But then as the excitement wore off and people realised what they were up against, they suddenly stopped spending. "The shops were full and no-one was buying," he recalls. "The lines of taxis waiting for fares went around the block. "We learned the hard way."

Source:

<http://www.telegraph.co.uk/comment/personal-view/3563614/What-Japan-can-teach-us-about-deflation.html>

**Country Case Studies**

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| **Swaziland** |
| **Country Profile** |
| Swaziland is a tiny, landlocked African country bordered by Mozambique to the East and South Africa on all other sides. The result of this is that Swaziland depends heavily on South Africa, which provides over 80% of its imports and receives 60% of its exports. Swaziland’s main export is sugar, having lost its wood-pulping manufacturing capability in 2010. Furthermore, many Swaziland citizens live and work in South Africa, sending remittances home to support their families. Swaziland became independent from British rule in 1968.  Swaziland is classified by the UN as a Lower Middle Income Country. GDP per capita is just shy of $10,000 per annum, but this masks a highly unequal distribution of income in which 80% of the country’s income and wealth is in the hands of just 20% of the population The Gini coefficient is currently estimated as being 0.501. 70% of Swaziland’s population rely on subsistence agriculture for their survival, and 40% of the population is technically unemployed. 69% of the population is below the official poverty line. Swaziland’s HDI figure is 0.536, ranking it 140th in the world.  Perhaps Swaziland’s biggest challenge is that over a quarter of its adult population is HIV positive – this is the world’s highest HIV/AIDS prevalence rate. Consequently, the median age is a mere 21. Around 40% of the population is aged under 14. Other factors that limit development in Swaziland include persistent overgrazing of common land, soil depletion, drought and flooding. Swaziland has few roads (of which less than a quarter are paved), and just 300km of railway lines. There is some mining activity – iron ore, coal, gold and quarry stones – but it is small-scale and labour-intensive, attracting little investment.  Other economic indicators include:   * Savings rate of around 12% of GDP * A low investment rate of around 12% * 75% of AD being accounted for by consumer spending |

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| **Issues to consider** |
| 1. **Land-locked countries:** 2. Explain why being land-locked, as Swaziland is, might make it difficult for Swaziland to achieve higher rates of economic growth and a higher level of economic development. 3. Find two more examples of land-locked countries that have low levels of economic development. 4. Find at least one example of a land-locked country that has a high level of economic development, and explain how this country has overcome the challenge of being land-locked. |
| 1. **Living standards** 2. Using evidence from the case study, explain whether you think Swaziland’s GDP or GNP will be higher, and explain your answer. 3. Explain why the level of inequality in many LEDCs is high. 4. Using evidence from the case study and your own knowledge, explain whether measuring the HDI in Swaziland is a good way of assessing the level of development in Swaziland. |
| 1. **Long-run growth** 2. Explain why a low savings rate is likely to result in a low rate of investment. 3. Assess the reasons why Swaziland might struggle to attract inwards FDI. 4. Explain how a higher rate of investment could lead to increased economic growth **and** higher levels of economic development in Swaziland. |
| 1. **Policy prescription**   Suppose you are appointed by an organisation such as the World Bank to provide advice to Swaziland’s government on how to achieve a higher rate of economic growth and how to raise living standards. Write a short report outlining and evaluating 5 possible policies that could be adopted by the Swaziland government. |

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| **South Korea** |
| **Country Profile** |
| South Korea has developed into one of Asia’s most affluent economies since the Korean peninsula separated in North and South in 1948. In the early 1960s South Korea was one of the poorest states in Asia; by 2004 it had joined the so-called trillion-dollar club of countries. South Korea’s HDI stands at 0.909, ranking it 12th worldwide.  Until the early 1990s, South Korea was characterised by an authoritarian political regime, which heavily invested in large family-run conglomerate industrial companies (*known as chaebols*) including Hyundai and Samsung. At the same time, imports of manufactured goods were restricted (although imports of raw materials and the latest technology were allowed) forcing the country to develop its own substitutes and develop its manufacturing base. Savings and investment and the selling of exports were encouraged; consumer spending was discouraged. Indeed, the savings rate today still stands at around 35%.  The South Korean economy was hit hard by the 1997-98 Asian Financial Crisis, triggered by the collapse of the Thai Baht. With an export-oriented economy, it was difficult for South Korea to sell to its Asian neighbours. GDP plunged by 7% in a year, but recovered by 2000. Following the Crisis, the South Korean government relaxed controls on inwards FDI, and simultaneously relaxed some import controls. This meant that the country did not suffer quite as badly during the 2007-2009 Global Financial Crisis. South Korea has since signed a Free Trade Agreement with the USA.  Whilst South Korea’s growth and development has been remarkable, its continuation looks slightly perilous. The country has a rapidly ageing population and an incredibly inflexible labour market; competition for graduate-level jobs in the *chaebols* is fierce, with the process starting in primary school as anxious parents enrol their children in as many crammer-schools and additional tuition classes as possible to give their offspring the best chance of securing these jobs. The South Korean government is keenly aware of these issues and has been introducing new policies to try and tackle them. For example, they have subsidised creative industries such as film and TV (which now makes South Korea the 7th largest film economy in the world). The government is also carrying out a programme of deregulation in an attempt to stimulate entrepreneurship and the growth of small and medium sized businesses. However, ingrained cultural attitudes are difficult to change.  Some economic indicators:   * Gini coefficient: 0.302 * GDP per capita: $35,000 * GDP composition: agriculture 2.3%, industry 38.2% and services 59.4% * Unemployment rate: 3.5% * Population below the poverty line: 14.6% * Fiscal balances: budget surplus 1.2% of GDP and national debt 34.5% * Inflation rate: 1.3% |

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| **Issues to consider** |
| 1. **Import-Substitution and Export-Orientation strategies** 2. Explain two advantages and two disadvantages of a country, such as South Korea, following a strategy of import-substitution. 3. Explain two advantages and two disadvantages of a country, such as South Korea, following a strategy of export-orientation. 4. Find an example of another country that has used an import-substitution strategy to achieve growth, and another example of a country that has used an export-orientation strategy to achieve growth |
| 1. **Diversification** 2. Explain the benefits of free trade, such as that now practised between South Korea and the USA. 3. Assess the economic strengths and weaknesses of South Korea’s *chaebol* industrial structure. 4. Assess policies that the South Korean government could use to make the South Korean economy more diverse. |
| **3. Economy Analysis:** write a short report assessing the economic health of the South Korean economy, and predict how the economy will fare over the next decade. |

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| **Australia** |
| **Country Profile** |
| Until the 1980s, the Australian economy was probably best described as an underdeveloped market economy with socialist tendencies. Industries such as banking, education, transport, telecommunications, health and education were all government-owned. Wages were heavily regulated and there was strong protectionism.  In 1983, following a period of high inflation, high unemployment and numerous industrial disputes, the government decided that structural reform was essential – union power was reduced, the Australian dollar was allowed to float, and the banking system was deregulated. However, an extensive programme of privatisation was only established properly in 1991.  In 1988, the Australian government also decided to start reducing and in some cases removing some of the tariffs and quotas on imports. This helped to bring down the rate of inflation. Whilst some manufacturers were initially worried about whether they would be able to survive the increased competition from low-cost Asian manufacturers, they adapted and innovated, and many Australian firms survived. Indeed, Australian agricultural producers of cheese and wine flourished, developing new ranges and establishing products that were “organic”, “gourmet” and “free range”.  In 1996 the Australian government decided to revamp the tax system. Income taxes and other direct taxes were cut, whilst indirect taxes such as VAT were raised. This was intended to reduce tax avoidance and evasion, as well as making the tax system simpler. All of the reforms from 1983 to 1996 made it possible for the Australian economy to successfully weather the storm of the 1997-98 Asian Financial Crisis. The economy continued to grow strongly for the next two decades, aided in particular by rising Chinese demand for Australian commodity exports.  By 2015, however, slowing Chinese demand hit Australian commodity producers hard. Furthermore, many Australian firms *not* in the commodity sector had suffered somewhat from the impact of the “resource curse” – demand for Australian minerals and coal had caused the currency to appreciate, making other exports uncompetitive. This was one reason why Australia’s government was active in signing numerous free trade agreements. Australia was also starting to struggle with the effects of climate change on its already-dry continent. |

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| **Issues to consider** |
| 1. **The resource curse** 2. Explain what is meant by the “resource curse”. 3. Assess policies that a government could use to protect itself from the resource curse in a) MEDC countries and b) LEDC countries |
| 1. **Free market economics** 2. Using evidence from the case study, give examples of how the Australian government increased the role of the free market in their economy. 3. Explain two advantages and two disadvantages to an economy such as Australia of increasing the role of the free market in the allocation of resources. 4. Explain two advantages and two disadvantages to LEDC of your choice of increasing the role of the free market in the allocation of resources. |
| 1. **Exchange rate systems** 2. Explain the likely risks involved to the Australian economy when the Australian government decided to adopt a freely floating exchange rate in the 1980s. 3. Explain the advantages and disadvantages of moving from a fixed exchange rate system to a floating exchange rate system for an LEDC of your choice. |
| 1. **Economic predictions on climate change**   Suppose you have been appointed by the UN to assess the economic impact of climate change on dry, arid countries such as Australia and many African countries. Write a report outlining your predictions for the impact of climate change on dry MEDCs and LEDCs, and assess policies that could be used in MEDCs and LEDCs to mitigate the effect of climate change on their level of economic development. |

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| **Bangladesh** |
| **Country Profile** |
| Over the last two decades, the Bangladesh economy has seen fairly steady, continuous economic growth of around 6% per annum on average, and many economic analysts believe that much of this is due to the effective use of international aid. Bangladesh is the world’s 8th most populated country, and much of the country is at severe risk of flooding due to its coastal location and low land levels. Many analysts regard Bangladesh as being an over-populated country.  Around 70% of Bangladesh’s land is used for agricultural purposes. The agricultural sector employs 50% of Bangladeshis, mostly in rice production. Garment and clothing exports account for around 80% of the revenue earned from Bangladesh’s exports. However, the clothing industry has been hit by a series of factory accidents which have killed or injured many Bangladeshis, and also by a series of crippling strikes.  Bangladesh receives around $2.5bn in aid every year, of which around $77m is in the form of humanitarian assistance. Much of the aid has been spent on helping Bangladesh to be more self-sufficient in terms of food. Around 36% of aid is typically used to provide public services, as the Bangladeshi government struggles to carry out that function itself – corruption levels are high, and Transparency International ranks Bangladesh as the 14th most corrupt country in the world. Much of the aid provided directly to the government never makes it to its intended use, so many of the large-scale infrastructure projects approved by aid donors, such as high-speed railways, never get built. In a 2012 survey, it was discovered that some of the aid provided by the UK’s DfiD had been spent on setting up a Question Time-type TV show in Bangladesh (costing £5m) and establishing a telephone line announcing upcoming debates in Bangladesh’s legislature (over £0.5m). Around 9% of aid provided to Bangladesh is used to help maintain peace and security.  Some key economic indicators:   * GDP per capita: $3400pa * Savings rate: 29.1% * Government spending: 5% of GDP * Underemployment: 40% * Unemployment: 5% * Inwards FDI: $9.5bn pa * HDI value: 0.515 (146th) |

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| **Issues to consider** |
| 1. **Population** 2. Explain the problems facing a country such as Bangladesh due to high population levels. 3. Assess policies that the government of an LEDC such as Bangladesh could use to reduce population pressures. |
| 1. **Aid – or Overseas Development Assistance (ODA)** 2. Explain the different types of aid that a country such as Bangladesh might receive. 3. Explain how aid can help a country such as Bangladesh to achieve a higher level of economic development. 4. Explain how the provision of aid to a country such as Bangladesh might not help it to achieve a higher level of economic development. 5. Discuss the economic impact on Bangladesh of providing humanitarian aid. 6. Compare and contrast the provision of inwards FDI to aid, in an LEDC such as Bangladesh. |
| 1. **The clothing industry** 2. Explain the economic reasons why Bangladesh specialises in the production of a) rice, and b) clothing 3. Discuss policies that could be used by the Bangladeshi government and the wider community to improve working conditions in Bangladeshi clothing factories. |

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| **Brazil** |
| **Country Profile** |
| Brazil’s recent economic history can divided into a series of chunks. From the end of WW2 to the mid 1960s, the Brazilian economy was characterised by a period of heavy import-substitution especially in the area of consumer goods. At times, the government faced balance of payments crises due to an over-valued fixed currency. As the government relaxed the peg, they also increased their support for industries such as transport equipment, chemicals and electrical equipment – industries such as textiles and food products declined. From the late 1960s through to the mid 1970s, Brazil’s growth was rapid and impressive as the economy modernised, and exports to the increasingly rich USA shot up. However, Brazil’s gains were unequally distributed – areas with highly skilled workers became much richer, but other areas such as Brazil’s north east remained stagnant, further depressed by a harsh climate and weak property rights.  From 1974 to around 1986, Brazil’s government again focused on a strategy of import-substitution and exports of manufactured goods. At the start of this period, Brazil suffered the effects of the huge increase in oil prices which raised the cost of imports. Undeterred, the government set about trying to change Brazil’s comparative advantage, promoting import-substitution of goods such as petro-chemicals, fertilisers and steel. Supporting these industries, however, led to a huge increase in the value of public sector debt, and an increase in the rate of inflation. In the early 1980s, international markets began to realise that Brazil (along with Argentina and Mexico) would be unable to repay their debts. Consequently, the IMF forced Brazil to restructure its debts alongside imposing hefty austerity programmes (the “Structural Adjustment Programmes” or SAPs). In the following decade, income per head in Brazil plummeted, and many people turned to crime and prostitution to make ends meet. Eventually the economy started to recover.  By 2010, however, things were taking a turn for the worse. Demand for Brazilian exports fell, its currency depreciated causing inflation to rise, unemployment rose. In December 2015, Brazil’s bonds were downgraded to “junk” status by international ratings agencies. The government was facing charges of “hiding” the true size of the budget deficit which increased from 2% of GDP in 2010 to over 10% by 2015, and bribery scandals were surrounding Petrobas (a large state-owned oil company). Brazil is struggling to grow. Brazilian companies spend an average of 2600 hours per year grappling with the complex tax law (compared with just 356 hours for South American on average). People can retire at the age of 55 and receive huge pensions, equivalent to the minimum wage. Brazil’s constitution prevents cuts from being made to 90% of public spending. Many believe that Brazil’s government is just too large and unwieldy to be an effective allocator of resources. Despite its own huge debts, in 2013 Brazil decided to cancel the nearly-$1bn debt owed to it by 12 African countries, including Zambia and Tanzania, in an attempt to boost the economic ties between Brazil and Africa, giving Brazil better access rights to African minerals and commodities. |

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| **Issues to consider** |
| 1. **Government intervention** 2. Explain the possible reasons why the Brazilian government might have chosen to support some industries but not others in the post-WW2 period. 3. Assess the impact on growth and development of government financial support for certain industries. 4. Discuss the view that Brazil’s public sector is currently too large. |
| 1. **Debt relief** 2. Research and summarise the nature of the Structural Adjustment Programmes deployed by the IMF in the 1980s in Latin America. 3. Assess the likely overall impact on a) Brazil and b) Zambia of Brazil’s decision to cancel the debt owed by Zambia in 2013. 4. Assess the view that all debt owed by LEDCs should be cancelled by MEDCs. |
| 1. **The hunt for minerals in Africa** 2. Research and summarise the advantages to sub-Saharan African countries of the inwards FDI as a result of the commodity boom. 3. Research and summarise the disadvantages to sub-Saharan African countries of the inwards FDI as a result of the commodity boom. 4. How could the government of a sub-Saharan African country ensure that their country has a net gain from the search for commodities in their country? |

**Game Theory Handout**

“Game theory” is a technique used by economists to help them analyse how different people or groups will behave in a given situation, assuming that they are rational. Game theory techniques really started to be developed and used by economists in the 1940s and 1950s.

In A-level Economics, the use of game theory is considered only in relation to the analysis of how firms in an **oligopoly** might behave in a particular market. Game theory is particularly useful in predicting and analysing outcomes in an oligopolistic market structure because of the **interdependence** of firms. Interdependence means that the behaviour of one firm *depends on* the choices and behaviour of other firms; in other words, individual firms do not make decisions *independently* of each other. For example, if the tour operator Thomas Cook decides to cut its prices just after Christmas on summer package holidays then other dominant tour operators such as Thomson might base their pricing strategy on Thomas Cook’s behaviour, and therefore also decide to cut their prices.

If you read different textbooks and research on game theory on the Internet, then you will find that there are a number of different ways of representing the games used in game theory. For the purpose of A-level Economics, the use of a **payoff matrix** is required. The most common **game** that we use to help us understand how firms in an oligopoly behave is called the **Prisoners’ Dilemma.**

**Payoff Matrix Method - Example**

1. We need to start by making some assumptions. The simplest payoff matrix assumes that there are just 2 firms (i.e. a **duopoly**) and that they can each choose from one of two **strategies**. A strategy is effectively just a “business decision”, such as “lower prices” or “more advertising” or “raised quality”. In this case, we will assume that there are two coffee shops: Caffe Nemo and Starbags. They can choose to either raise their price or lower their price.
2. Next, you need to draw your payoff matrix, as follows (the matrix has been colour coded so as to help with the explanation, but there would be no need to do this in an exam):

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| --- | --- | --- | --- |
|  |  | Starbags | |
|  |  | Raise Price | Lower Price |
| Caffe Nemo | Raise Price |  |  |
| Lower Price |  |  |

1. For this example, we will also assume that the game is a **one-shot game** – this means that the decision on whether to raise or lower the price is made just once and we don’t need to consider what might happen in future decisions. This is clearly an over-simplification of the decision-making process of firms in oligopoly as firms usually assume that they will continue to exist in the future!
2. We will now enter **payoffs** into the matrix. The numbers on the left-hand side of each box represent the profits to Caffe Nemo (i.e. the firm on the left of the matrix) and the numbers on the right-hand side of each box represent the profits to Starbags (i.e. the firm to the top of the matrix). To keep matter simple, this particular Prisoner’s Dilemma example has **symmetrical payoffs** i.e. the profits are the same to each firm for a given strategy combination.

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|  |  | Starbags | |
|  |  | Raise Price | Lower Price |
| Caffe Nemo | Raise Price | (10 , 10) | (3 , 12) |
| Lower Price | (12 , 3) | (7 , 7) |

1. The next step is to work out the **best responses** and **dominant strategies** of each firm. The best way to tackle this is to be extremely methodical.
   1. Start by assuming the view of Caffe Nemo. If we think that Starbags will decide to raise the price, then at Caffe Nemo we will earn £10m if we also raise the price but £12m if we lower the price. So choosing to lower the price would be our **best response.** You should underline this choice in your payoff matrix, as follows:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Starbags | |
|  |  | Raise Price | Lower Price |
| Caffe Nemo | Raise Price | (10 , 10) | (3 , 12) |
| Lower Price | (12 , 3) | (7 , 7) |

* 1. Still assuming the view of Caffe Nemo, we now think that Starbags might decide to lower the price. This means that at Caffe Nemo we would earn £3m if we raised the price but £7m if we lowered the price. Therefore choosing to lower the price is our **best response**. We underline this choice in our payoff matrix:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Starbags | |
|  |  | Raise Price | Lower Price |
| Caffe Nemo | Raise Price | (10 , 10) | (3 , 12) |
| Lower Price | (12 , 3) | (7 , 7) |

* 1. Because we have underlined “Lower Price” in both cells, this means that we have a **dominant strategy** i.e. regardless of Starbags’ decision to raise or lower their price, our best response is *always* to lower the price.
  2. In this case, the payoff matrix is completely symmetrical, and so the best response of Starbags to Caffe Nemo’s decision to raise or lower the price is going to be identical – Starbags therefore also has a dominant strategy of Lower Price.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Starbags | |
|  |  | Raise Price | Lower Price |
| Caffe Nemo | Raise Price | (10 , 10) | (3 , 12) |
| Lower Price | (12 , 3) | **(7 , 7)** |

* 1. There is one cell in which the dominant strategy of each firm coincides – this is shown in **bold** in the matrix above. This combination of strategies is known as the **Nash Equilibrium**. In technical terms, a Nash equilibrium exists when no one “player” in a game has the incentive to deviate from their chosen strategy after taking into account the decision made by the other player.

1. We have established that the Nash Equilibrium in this case is for both firms to play the Lower Price strategy. But look more closely – is this the optimum possible result? If both firms had decided to play the Raise Price strategy, then they would have each earned £10m, rather than the £7m they earn by playing the Lower Price strategy. The only way that both firms would choose to play Raise Price, though, is through **collusion** or **collaboration**. Collusion is usually illegal, because it reduces consumer surplus. Collusion is highly unlikely in a **one-shot game**.
2. Now let’s consider what would happen if we made this situation a bit more realistic, and turned it into an **infinitely repeated game**. In the “real world”, firms compete with each other for years, and this gives them more opportunity to interact, and perhaps even collude. As such, we tend to find that firms in oligopoly occasionally collude, but frequently this **collusion** eventually breaks down. We can use the payoff matrix to help us analyse why this breakdown of collusion occurs. Take a look at the top left cell in the payoff matrix where the firms are colluding – both Caffe Nemo and Starbags earn £10m each. But suppose that the managers at Caffe Nemo decide one week that they want to gain some market share and earn a bit more profit, so decide to suddenly Lower Price (without prewarning the managers of Starbags!). This means that Caffe Nemo will earn £12m, and Starbags will only earn £3m. The managers at Starbags will realise that they will also need to Lower Price, returning them to original Nash Equilibrium in which both firms play the Lower Price strategy.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Starbags | |
|  |  | Raise Price | Lower Price |
| Caffe Nemo | Raise Price | (10 , 10) **①** | (3 , 12) |
| Lower Price | (12 , 3) **②** | (7 , 7) **③** |

1. Over time, levels of trust may build up again between Caffe Nemo and Starbags, and so they may decide to revert to collusion once again in the future. However, the incentive is always there to undercut the competitor and play the Lower Price strategy.

**Factors that make collusion more likely**

What might make firms in an oligopoly decide to collude rather than compete? The main motive will clearly be the drive for profit – the payoff matrix above shows that in some cases, collusion will be more profitable for firms than competition.

Reaching a collusive agreement (which, remember, is illegal in most countries!) is more likely if there are high levels of trust between firms. If they are part of the same “business group” then there might be more trust – think about airlines that are part of groups such as Star Alliance or One World.

If there has been movement of senior managers or chief executives between the firms then again there may be more trust.

If there are regular industry meetings in which senior managers meet each other then again they are more likely to build up relationships – this happened in the UK several years ago when Independent Schools were accused of colluding on school fees as a result of school bursars meeting regularly to discuss school finance issues.

Collusion is also more likely if there is a small number of firms involved because it is easier to monitor their behaviour and spot any deviations from the collusive agreement, and also if goods are homogeneous in nature and difficult to differentiate.

Collusion is more likely to be maintained in an industry if there are severe punishments involved in breaking the collusive agreement. For example, colluding firms may use the same suppliers, but access to raw materials might become more difficult if they deviate from the agreement.

**Collusion and the Competition Authorities**

The UK’s **Competition and Markets Authority**, and the EU’s competition bodies, have traditionally found collusion a difficult area to tackle, because it is hard to determine whether high prices in an oligopolistic industry are due to collusion, or simply the nature of the industry. Furthermore, firms may engage in **tacit collusion**, whereby a dominant firm raises its price and other firms simply copy, especially if demand is price inelastic – this is not illegal. Collusion investigations have been expensive and difficult.

However, by taking into account what game theory predicts, competition bodies have been encouraging **whistleblowing** – this means that firms which are engaged in collusion can hand themselves in to the authorities and in return for providing details may avoid prosecution or fines. This widens the gap between the payoffs of the firms involved in collusion and makes it more likely that collusion will break down.

**Evaluating the use of game theory to analyse firm behaviour in oligopolies**

Using game theory is an alternative to the more traditional “kinked demand” curve model.

*Advantages*

* Powerful tool that can be used (at more advanced levels) to analyse interactions between a large number of firms with a large number of possible strategies
* Can be dynamic, rather than static, because it can show how a firm’s behaviour might change over time
* Reasonably accurate in terms of modelling the behaviour of firms in a duopoly

*Disadvantages*

* In reality it is difficult for firms to know what the payoffs might be – very hard to make accurate business predictions! It’s even harder to make predictions about the payoffs to *other firms* too!
* People do not behave rationally, but game theoretical approaches assume that they do – entrepreneurs in particular might be strong risk-takers

**Some review questions**

1. Explain what you understand the following key terms to mean:
   1. Oligopoly
   2. Interdependence
   3. Payoff matrix
   4. Dominant strategy
   5. One-shot game
   6. Nash equilibrium
   7. Collusion
2. Determine the Nash equilibrium (or equilibria!) in each of the following payoff matrices:
   1. Funky Beats and Top Notes music stores, and their decisions to advertise heavily or not at all

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Top Notes | |
|  |  | Heavy advertising | No advertising |
| Funky Beats | Heavy advertising | (15 , 15) | (14 , 10) |
| No advertising | (10, 14) | (18 , 18) |

* 1. Yey Sushi and Japanagogo sushi bars, and their decisions to locate on high streets or side streets

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Japanagogo | |
|  |  | Side Street | High Street |
| Yey Sushi | High Street | (22 , 12) | (15 , 15) |
| Side Street | (20 , 20) | (12, 22) |

* 1. Jane Lewis and Dobbenhams department stores, and their decisions to start price cuts before Christmas or not

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Dobbenhams | |
|  |  | Slash prices | Maintain prices |
| Jane Lewis | Slash prices | (14 , 18) | (18 , 2) |
| Maintain prices | (16, 4) | (20, 20) |

**Economic Timeline since 1990**

This lesson resource can be used in a number of ways:

1. Reference material / handout, to be referred to throughout the A-level course.
2. A sorting exercise i.e. cut out the individual “events” column, without the year, and ask students to research and order the events
3. An extension exercise, in which students need to research the significance of each event for a) the UK economy and b) the global economy. This task could be allocated across the class, so that different students are allocated different events, and then need to present their findings to their class.

|  |  |  |
| --- | --- | --- |
| **Year(s)** | **Event** | **Significance for the UK and Global Economy** |
| 1989 to 1991 | The collapse of the USSR. The Revolutions of 1989 see the end of the Communist regimes in much of Central and Eastern Europe, Germany is reunited in 1990, and in 1991, the USSR is formally dissolved |  |
| 1990 | Margaret Thatcher resigns as leader of the Conservative Party, and therefore resigns as Prime Minister |  |
| 1990 to 1993 | Global recession hits many countries hard, including the US, Australia, New Zealand and the UK, causing high levels of unemployment and social unrest/riots. |  |
| 1991 | India faces a huge balance of payments crisis, and the Indian government comes close to defaulting on its debt – they have to airlift 67 tonnes of gold to the IMF in return for a $2.2bn loan |  |
| 1991 | Operation Desert Storm is launched by the US in Iraq |  |
| 1992 | The Maastricht Treaty is signed, officially launching the European Union, setting the stage for the introduction of the Euro and removing many border controls on continental Europe as part of the Schengen Agreement. |  |
| 1992 to 1996 | The “third” Balkan War takes place after the fall of Communism in Yugoslavia triggers ethnic tensions and fighting in Bosnia, Croatia and Serbia in particular. |  |
| 1993 | The World Wide Web is unveiled to the public |  |
| 1993 | The North American Free Trade Movement (NAFTA) is signed by the US, Canada and Mexico. |  |
| 1994 | The Mexican government’s sudden and unexpected devaluation of their currency (the peso) against the US dollar triggers the so-called Tequila Crisis, or Mexican Peso Crisis, in which large amounts of capital flight from Mexico triggered a huge financial crisis |  |
| 1994 | The Channel Tunnel between England and France opens |  |
| 1995 | The World Trade Organisation comes into being |  |
| 1996 | The Mad Cow Disease crisis hits the UK, causing a huge fall in the export of UK-produced food and economic ruin for beef farmers |  |
| 1997 | In May, Tony Blair’s New Labour wins a landslide UK general election victory |  |
| 1997 | The Asian Financial Crisis started in July, causing turmoil in East Asia and causing fear around the rest of the world due to “contagion”. The crisis was triggered by the collapse of the Thai Baht after it floated due to lack of currency to support its fixed peg; other Asian currencies devalued, stock markets slumped and the value of private debt rocketed |  |
| 1997 | The Kyoto Protocol is signed in December, committing states to reducing carbon emissions in an attempt to tackle global warming |  |
| 1997 to 2001 | The dot-com bubble and crash – new internet startups saw their share prices shoot up, only to crash in 2001 |  |
| 1998 | Google is founded in California |  |
| 1998 to 2002 | A financial crisis in Argentina, not long after a prolonged recession from 1974 – 1990, caused high levels of unemployment and riots, as well a government default on its debts and the use of currencies other than the Argentinian Peso. |  |
| 2001 | The 9/11 attacks take place in the US, causing turmoil in global financial markets |  |
| 2002 | The Euro is fully launched as a European currency in everyday use |  |
| 2003 to 2008 | Global oil price hike – oil prices rose from around $30 a barrel in 2003 to nearly $150 by July 2008, as a result of increased tension in the Middle East, rising demand in China, a depreciating US dollar and concerns over peak oil. |  |
| 2005 | July 7th bomb attacks in London |  |
| 2007 to 2009 | US subprime mortgage crisis, triggered by a rapid decline in house prices leading to negative equity and ultimately large-scale default on mortgage debt |  |
| 2008 | In February, the UK government had to nationalise the mortgage lender Northern Rock following the first bank run in the UK in over a century |  |
| 2008 | In October, the UK government part-nationalised 3 of the UK’s leading banks with a £37bn rescue package following the global “credit crunch” |  |
| 2009 to 2015 | European debt crisis, as the PIIGs (Portugal, Ireland, Italy, Greece and Spain) struggled to repay their debt or bail out their own banks, without assistance from the IMF and European Central Bank. |  |
| 2010 | In May, the UK general election returned a Coalition government |  |
| 2010 | In October, the UK government announces a large number of austerity policies aimed at reducing the size of the budget deficit and public sector debt |  |
| 2011 | In March a huge earthquake off the coast of Japan triggers a tsunami, leading to several nuclear accidents, and the need for the Bank of Japan to stabilise the banking system as a result of the world’s most expensive natural disaster |  |
| 2012 | London hosts the Olympics |  |
| 2014 | The Ebola epidemic starts in West Africa |  |
| 2014 | A referendum on Scottish independence is held in September, and a No Vote is returned |  |
| 2014 and ongoing | The Russian Financial Crisis was triggered by the collapse of the Russian Rouble (the Russian currency) towards the end of 2014, caused by a lack of investor confidence resulting from a fall in the price of oil (one of Russia’s main exports) and the international economic sanctions placed on Russia as a result of her actions in the Ukraine and elsewhere. |  |
| 2015 and ongoing | Chinese stock market crash in June, causing around one third to be wiped off the value of shares within a month |  |

**Financial Sector– Suggested Scheme of Work**

|  |  |
| --- | --- |
| **Specification**   * **The financial sector**   **Understand the changes in the structure of the UK economy in recent years, in particular the growing size and influence of the financial sector**   * **Asset bubbles**   **Explain, with appropriate examples (for example the financial crisis of 2007-08), how asset bubbles may arise and what the economic consequences of such bubbles may be.**   * **The role and purpose of regulation**   **Understand the need for regulation of the financial system in terms of creating financial stability** | **Proposed Scheme of Work**  **Lesson 1** **(what is a financial market)**  Start with a discussion about Savings and Investment. Classical explanation that S=I is not required (and will, in fact, be unhelpful) but a general discussion of the basic business model of a financial institution (re-cycling deposits into investment) is a good basis. Explanation that Investments, however, don’t have an immediate return and therefore one of the most significant factors affecting Investment is expectations of the future (leading to a discussion of uncertainty and risk). Given this, financial markets should be seen not just as a means to provide money for investment but also to make money (i.e. an income) by taking advantage of the differences among people’s views about future returns on the same investment project. The buying and selling of an asset is driven not by the ultimate return but by the expectations of that return.  Opportunity now to look at various financial organisations/fund managers and how they have made money [POTENTIAL RESEARCH TASK]. Opportunity for plenty of investment/risk games to illustrate the idea of speculation. [TWO GAMES PROVIDED].  **Lesson 2 (Asset bubbles)**   * Having ironed out exactly what a financial market is and having had the opportunity to explore some ideas with regards to investments on the Stock Market via games or historical research, this should lead nicely to a discussion on speculation bubbles (case studies could include South China Seas, 1929 Stock Market crash, dotcom bubble, 1997 asset bubbles is SE Asia) and then explore their impact on the economies [POTENTIAL RESEARCH TASK]. Key is to relate this all back to the macro-objectives that students are familiar with, using their AD/AS diagrams and their experiences from the games. * Examples might include: South Sea bubble 1720s – large impact on economy. Led to recession due to scale of financial losses. Also led to changes in the law about ownership of shares and companies * Railways mania 1840s – many middle class investors lost a fortune when railway share prices fell, contributing to an economic downturn. At least the economy did get quite a few good railway lines out of the period. * The Dot Com bubble 1999. A crash in technology share prices from unsustainable levels. There was a fear this would cause recession, but a loosening of monetary policy prevented it. * Credit bubble and [credit crunch](http://www.economicshelp.org/blog/706/economics/essays-on-the-credit-crunch/) of 2000-2008. The credit crunch of 2007-08 caused one of the deepest recessions of the past 100 years and widespread financial turmoil. It could have been much worse without government bailouts. But, so far there has only been very limited change in the way financial markets are regulated.   **Lesson 3 + (Regulation)**  Link from the negative impacts of bubbles to the need general purpose of financial regulation (maintain market confidence, financial stability, consumer protection, reduction of financial crime) before taking a more detailed look at the FCA in the UK, their powers and the impact they have had on the financial markets post-2008. One way to do this is to explore the FCA website with your students:  For example, they [FCA] list their 3 main aims as:   * the financial industry is run with integrity * firms provide consumers with appropriate products and services * consumers can trust that firms have their best interests at heart   What does this mean? Why is it important? Is it easy to do? Is it likely to be effective?  Students should then be asked to explore the website and look at various examples of when the FCA has intervened and then judge for themselves as to whether or not it has been effective? In making this judgements, students may wish to consider the idea of regulatory capture, political needs usurping economic logic, departmental budgets etc …  Again, this provides students with an opportunity to research certain rogue traders who have made a mockery of the regulators in years gone passed and find out how they did it e.g. Jerome Kerviel, Nick Leeson.  **Lesson 4 (Financial Sector in the UK)**  Students should be exposed to data in this lesson which allows them to make their conclusions about the finance industry in the UK. There is a lot of good data out there. See here for a good article:  [**http://www.ibtimes.co.uk/uk-finance-industry-has-highest-number-workers-since-credit-crisis-1480569**](http://www.ibtimes.co.uk/uk-finance-industry-has-highest-number-workers-since-credit-crisis-1480569)  Interesting questions to discuss might be: why does the UK seem to have comparative advantage in finance, what are the advantages of a financial industry cluster to the firms in London? Who are London’s main rivals in the world? What does London offer that they can’t (and vice versa)? How many people work in finance? What is the average salary of a worker in the finance industry? What % of income do people ‘invest’ rather than save? How does compare to other countries? Do people trust the finance industry to handle their money well? Has that changed since 2008? Why does the UK have such little regional/local banking relative to many other countries (US, Germany, Brazil)? Relative capital-reserve ratios?  Ultimately this can be wound up with a final discussion (perhaps) about bankers’ wages and whether or not there is any justification for something like a wage cap. |

**Where to Invest Activity**

The aim of this game is to have as much money as possible at the end of the trading period.

Scenario- you are living in Zambia with Zambian Kwacha.

In your group you have managed to access some money (somehow- maybe you are the rich owners of some natural resources that Zambia has)

Your task is to decide how to invest this money and where.

**THE GAME**

You have $10million worh of Kwacha to invest.

The game will last for a period of 6 years with each month you being able to make an investment decision of where to put your money. The outcome (who much money you make) will depend on your choice and then the roll of the dice.

Round to the nearest 0.25 million will be used to make the splitting up and calculations.

You need a dice. Alternatively, you can use a virtual one: **http://www.teacherled.com/resources/dice/diceload.html**

The options to invest **each year** are as follows-

1. Zambia banks offer a return of 6% on your savings at the end of the year. However, Zambian banks are risky there is a 50% chance your money will go missing this year and you will lose it ALL to the corrupt bankers.

(1-3 you lose; 4-6 you get 6%)

1. Zambian stocks and shares- returns will depend on their performance – there is an equal possibility of a -5% return, -2% return, -0.1% return, 0.1% return, 5% return or a 10% return.

(corresponding to 1-6 in order)

1. No questions-asked Swiss bank. Return guaranteed of 0.25% at the end of the year. These banks are very trust worthy!

(no need to roll)

1. No questions-asked Cypriot Bank- return of 4.5% at end of the year. However, the Cypriot financial sector is very weak right now; in 2012 the Cypriot Government seized 10% of all financial assets owned by foreigners to help payback debt. There is a 1/6 chance HALF the money you have invested may be lost.

(1 you lose; 2-6 you get 4.5%).