

Chapter 9

BBNN: Shocks

The previous chapter concentrated on where the economy is, how it moves, and where it is likely to move. All those questions assuming that the schedules are given – or fixed. This chapter discusses what makes the curves move. Let me over-simplify the issue. In the BBNN the economy is described by the wage in dollars and the aggregate demand. Shocks to the wage in dollars and the aggregate demand move the economy, all other shocks... move the schedules. So, labor growth, health, education, productivity, external shocks, reforms, etc. all those possible shocks move the schedules. This is obviously oversimplifying the discussion, but I think it is a good rule of thumb.

9.1 Shocks to the BB

In this section we discuss the shocks that move the BB. One interesting aspect of the shocks to the BB is that they all have the same “flavor”. To understand how the economy moves I will go through one example very carefully (hopefully... carefully). To develop the intuition I will concentrate first on the BB as defined by the Current Account CA_{BB} . The intuition to the Trade Balance (TB_{BB}) is easily transferable.

Assume that the economy receives a positive productivity shock. How can we think about the movement of the schedule? The procedure I use always starts by separating the impact of the shock to the different variables described in the BBNN assuming the economy starts at the equilibrium. For instance, at the moment the productivity increases it has no impact on wages, nor on the exchange rate, nor on consumption, investment, or government expenditures. Hence, the shock has no impact on the variables that position the economy in the BBNN map. By the way this reasoning does not imply that the shock will not ever have an impact on these variables. Certainly that is not the case. In the long run the shock will have an impact, but it is easier to understand how things move if we concentrate exclusively on the immediate impact.

Therefore, if aggregate demand is constant, and the wage in dollars is constant, then what is affected by the productivity shock? Production. indeed, production increases. If the demand is constant, the excess production will be exported, and the economy will experience a surplus in the current account. So the original position of the economy, where the current account was zero and employment was at the natural rate, is now a position in which the current account is in surplus. Surpluses are always located above the CA_{BB} , and therefore this means that the new CA_{BB} needs to be located to the right and below the original CA_{BB} .

Lets do this again with the help of a figure. Assume that the economy produces only coconuts. In Figure 9.1 panel (a) we depict the initial condition of a fictitious economy in equilibrium. So, at the current

aggregate demand and the current wage in dollars the labor market is in equilibrium, and the current account is zero. At that moment, there is a shock that increases production. Assume that this is a shock that purely increase production. This is like the coconut trees are producing more than before. At the exact same aggregate demand and wage in dollars, the demand and supply for labor have not changed so if the economy was in equilibrium before it will continue to be in equilibrium now. However, from the current account point of view things have changed. We now have higher production of coconuts but the exact same consumption of coconuts. Remember that the consumption is the same because we have not changed aggregate demand! So, if the production increases but the local consumption is the same, what can the country do with the excess production? Export to international markets. The implication of this decision is that at the original point, where exports and imports were the same – i.e. the current account was zero – now it is a situation where exports have increased. First thing we should learned from this is that now we know that the BB *cannot* cross through the original point. In other words, the BB has moved. This is depicted in Figure 9.1 panel (b). The second step is to know where it has moved. The original point is now a situation of surplus, therefore, the point has to be above the BB. Immediately after the shock the economy has to look like the situation depicted in Figure 9.1 panel (c).

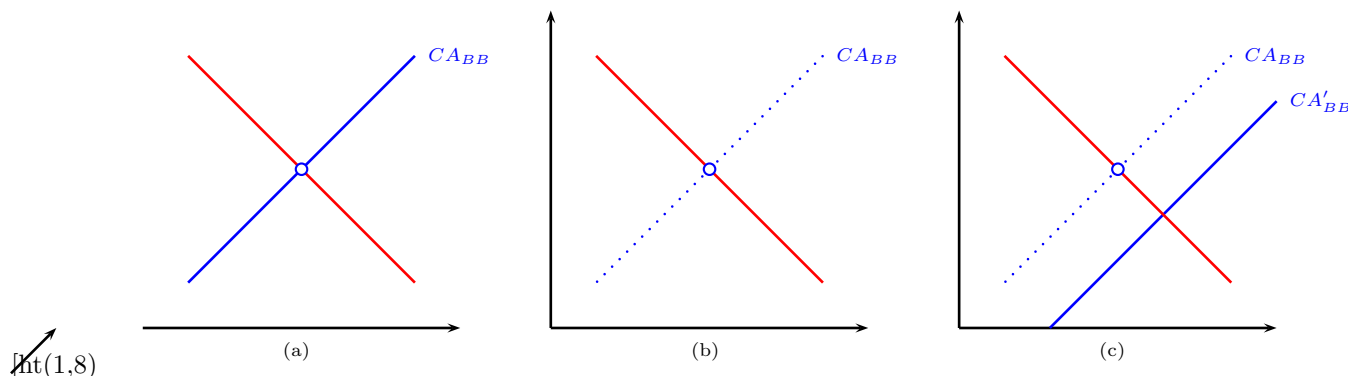


Figure 9.1: Positive Shock to the BB

Another way to understand where the BB moves is to search for the new equilibrium from the initial position. Return to panel (b) and stand over the original equilibrium. We know that we have a current account surplus at that point. The BB needs to cross over a different point where the current account returns to zero. Imagine that we start walking to the east from the original point. So, at the same wage in dollars we are increasing aggregate demand. The increase in the demand requires more imports and reduces the number of products available to export. This movement tends to reduce the surplus and “catches up”. At some point the current account will return to zero and the BB crosses there. Hence, the BB crosses to the right of the original equilibrium. We can also move north-south. From the original point if we move up the wage in dollars decline making the economy more competitive and increasing the surplus – so that is not the correct direction! Moving south on the other hand, increases the wage in dollars, makes the economy less competitive reducing its production. In the end, if the wages are increased enough the economy reaches zero current account, and the BB needs to cross south of the original equilibrium.

Any of the three ways of thinking will produce the exact same outcome. As depicted in Figure 9.1 panel (c) the BB needs to be to the right and below the original point. In the long run, as we learned from the previous chapter, the economy will move to the new equilibrium. The wage in dollars at that point is higher, and the aggregate demand is larger. In other words, the increase in productivity allows the economy to enjoy a higher level of consumption and a higher wage in dollars. In other words, the economy can afford a higher wages!

How the adjustment takes place can happen in very different ways, as we discuss below. For example, the central bank can allow the exchange rate to appreciate, so, the adjustment takes place that way – this is mostly how Japan has been adjusting for 70 years. If the central bank is stubborn and doesn't want to change the exchange rate, then we know that nominal wages will increase. Inflation will show up to do the adjustment; which is mostly the way China has been adjusting the last 30 years – although lately they are allowing the exchange rate to move a little.

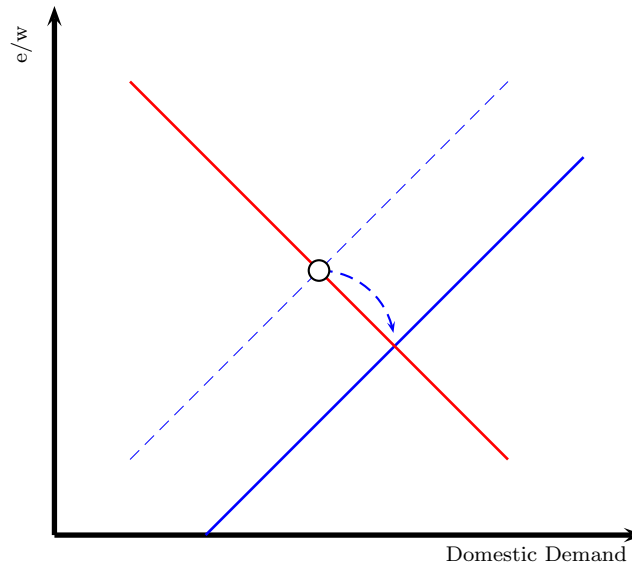


Figure 9.2: Positive Shock to the BB: Animation.

In Figure 9.2 we present the full adjustment in the economy (if you are reading this in a PDF file, this figure is an animation. Click on the figure and the dynamics are shown. From the shock, to where the economy will end up. Of course we do not show exactly how the adjustment takes place.

Now we are ready to have some short discussion about different shocks to the BB. We are mostly going to concentrate on “positive” shocks (increases in production) but it should be obvious that negative shocks just move in the opposite direction.

9.1.1 External Shocks

The first set of shocks are those that come from foreign markets. For example, demand for our products, and international prices of our exports. These shocks are extremely common and in fact the first theories of international contagion were based on these mechanisms. Let us study them in detail.

9.1.1.1 Terms of Trade

Conceivably the shock that has received the most attention in international economics is the movement of import and export prices. The terms of trade of a country are defined as the average price of its exports

divided by the average price of its imports. For example, when oil prices increase, the terms of trade of oil exporters improve, while the terms of trade of importers deteriorate. I do not know if you have paid attention to commodity prices lately, but this seems to be a large source of shocks.

How we can understand its implications on the BB? For simplicity assume that our country is a commodity exporter – oil in Venezuela, copper in Chile, or meat in Argentina. Assume we are in Venezuela then. If the price of oil increases, without changing the production, then for the same demand and same wage in dollars, the economy runs a surplus in the current account. Note that here the surplus is the increase in the value of exports – not necessarily an increase in the quantity exported. In any case, the exports increased... so the movement is exactly as the one described in Figure 9.1.

In the case of commodities, there are several reasons why the price can rise. First, the most common one, there is a negative shock to the supply of the commodity. In the case of oil, there is some social or political confrontation in some other country, that reduces the expected supply and prices increase. Second, and also very common in commodities and the one blamed for the recent rise in agricultural commodities, is the increase in the world demand for the commodity. In recent times, in fact, the growth experienced in China and India has increased the demand for food increasing its price. Obviously this assumes that the supply is given, which is not a bad assumption in the short run. The third reason is speculation. Several papers have studied the role that speculation has had in the price increases in commodities during the first 10 years of the 21st century.¹ Irrespectively of the source of the shock... the price of our exports increases, and that creates the movement in the trade balance (TB_{BB}) and the current account (CA_{BB}).

Notice that here you can see here the famous “Dutch Disease”; which indeed was the outcome of a terms of trade shock: the price of tulips increased to unprecedented levels. When the oil price rises the BB moves to the right. The economy has an increase in the wage in dollars. So, the firms that are exporting but that are not related to oil experience an increase in their cost, which reduces their competitiveness. The non-oil exporting sector shrinks, while the price is high. When the price of oil collapses the opposite takes place. Therefore, the non-oil sector expands and shrinks with the price of oil. This creates a lot of volatility in a sector that in principle should be exempt from such source of volatility. If hedging is costly, then investment in that sector is unprofitable. Therefore, it is not surprising that the manufacturing sector in commodity exporting countries is small and anemic. What is even worse is that according to this model there is nothing that those countries can do. If oil fluctuations are dramatic, then the government needs to have very active policy to avoid the appreciation in the good times, and the depreciation in the bad times. In fact, the stabilization of the wage in dollars – and more generally the real exchange rate – is crucial for the development of the non-commodity sector. I believe Chile is the country that has done the best job in this regard.²

9.1.1.2 Foreign Demand for Local Products

After discussing terms of trade, the other international shock that matters the most is the demand for domestic products. The idea of the shock is that the demand for our country’s products increases – I am old enough to remember the time when sushi was a delicatessen, now you have as many all-you-can-eat sushi places as wendy’s. When the foreign demand for our products increases clearly the value of our exports increases as well. Either the price rises, or the quantities exported increase. In the end, this shock looks identical to the terms of trade depicted in Figure 9.1.

The difference between this shock and the one in the previous subsection, is that in this section we are

¹See Espinasa, Reyes, Manzano, and Rigobon (2011) for a paper disentangling the demand, supply, and speculative shocks for oil markets. See also Parsons (2010) for a very good discussion on how financial transactions in future markets can lead to price increases.

²See my discussion on stabilization funds in ???, and also see the paper Hausmann and Rigobon (2003) where we develop this intuition – it is a little bit technical but all is explained there.

assuming that the demand change is exclusively for the products produced in our country – which are not necessarily commodities – while the shocks in the previous section can be demand, supply, or speculation of world products where our exports are just a small part of that. From the BBNN point of view, however, the shocks are treated identically, or have identical implications on the BB.

This shock has played a very important role in the understanding international contagion. In fact, the first paper on contagion used this fact – that countries trade with each other – to describe the propagation of shocks from one country to the other.³ A very large literature of contagion argues that a shock in one country is transmitted mostly to its trading partners. In our paper Forbes and Rigobon (2002) we develop simple methodological procedures to evaluate the existence of trade channels, and mostly we find that among emerging contagion is propagated to trading partners.⁴

9.1.2 Domestic Shocks to the BB

Having discussed shocks originated in international markets, now it is time to turn our attention to shocks that occur inside the country. Again, the shocks that we cover are those that affect production, or our country's ability to export, etc.

9.1.2.1 Natural Disasters

The most obvious ones to start with are natural disasters shocks. However, natural disasters are complicated and will be re-studied later in this chapter. The reason is that here we are going to assume a very particular natural disaster – one that reduces production but it has no effect on lives. Hence, we assume that this is a hurricane that destroys capital, production, and production capabilities, but that does not have a toll on lives. In other words, the hurricane, earthquake, flooding, fire, etc. only destroy factories (capital), crops (production), or infrastructure (production capabilities).

Just as clarification, conversely to the previous exercises, this is a negative shock. Rarely natural disasters are associated with production increases. Hence, the movement of the BB is in the opposite direction from the ones we have covered so far. In Figure 9.3 the situation is depicted. As we have done before, we start from equilibrium. In panel (a) we start by assuming that before the shock the economy is in internal and external equilibrium. At this point, assume that a natural disaster reduces production. What happens to labor markets? We have assumed a very special shock that has no impact on jobs nor on lives. Therefore, the labor market remains in equilibrium – nothing has changed! What happens to the external equilibrium? There is a current account deficit at the same level of demand and wage in dollars. So the BB cannot cross over the original equilibrium (panel (b)). In particular, keeping the aggregate demand at its original level and keeping wages also constant, the natural disaster reduces production. The drop in production and the constant aggregate demand implies that less products that the country used to export are available, also, some of the local demand needs to be supplied by additional imports – simply because the demand is constant and production drops. Therefore the equilibrium is not in equilibrium anymore, and the BB cannot cross over the original point. Where the BB moves? as we did before there are three ways of resolving this – which all give the same answer (thank god!). First, at the original point there is a current account deficit and labor markets are in equilibrium. So, the NN has to cross there, but deficits only occur below the BB. This implies that the BB should have moved to the left and up (panel (c)). Second, another way of thinking where the BB had to move is to start at the original point and ask what needs to happen to the local demand to return to equilibrium. If there is a deficit in the current account, a reduction in the aggregate demand is required. That means that the equilibrium has to occur at the left of the original point. Finally, the other way to find the equilibrium is to move wages. At the original point there is a deficit because demand

³See Gerlach and Smets (1995)

⁴Also see Forbes (2000), Glick and Rose (1999), and Rijckeghem and Weder (2001).

is much larger than production. If we reduce wages, however, the economy becomes more competitive and production increases. If production increases the gap in the external accounts drops – hence the current account deficit will get resolved at lower wages. Lower wages occur moving up from the original point. The BB needs to cross above the original equilibrium.

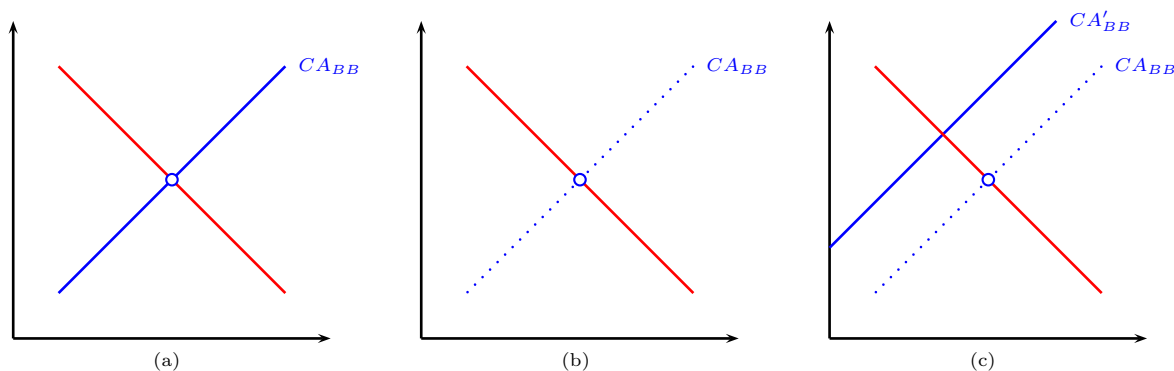


Figure 9.3: Natural Disasters: Pure BB Shock

What the BBNN says about the implications of a natural disaster? In panel (c) Figure 9.3 it is very clear that after a natural disaster the new equilibrium is above and to the left of where the economy is. Therefore, through time, the economy moves to a lower level of demand, and to a lower wage in dollars. In other words, there is a depreciation of the exchange rate and a drop in the aggregate demand – which indeed happens to every Caribbean island after being hit by a hurricane. Furthermore, the natural response after a natural disaster is to try to make up for the lost production by investing and increasing domestic productivity – in other words, to recover the productivity lost from the natural disaster. This is equivalent, as we will see below, to moving the BB to the right.

9.1.2.2 Productivity Increases

Having discussed natural disasters, now the attention turns to productivity increases – or growth enhancing policies. There are four types of policies or actions that can increase productivity: new technologies and capital investment; better managerial practices and organizational structure; better health, education, and other improvements in human capital; improvements in institutions such as contract enforcement, judicial system, and in general the rule of law.

Most of these reforms tend to improve productivity and by consequence production. Also, most of these policies tend to change the supply side with small impact on labor markets. Notice that I have omitted labor reform, immigration, social security, etc.

What are the implications of these reforms? All increase output and therefore they look identical to an increase in the price of the country's exports. So, the BB moves to the right (both the TB_{BB} and CA_{BB}) and all these reforms allow the country to increase its wages and enjoy a higher demand. In other words, improvements in any dimensions allow the country to sustain a much higher standard of living.

There is one extremely important difference: all these reforms have a permanent effect in productivity, while oil prices increase as likely as they decrease. This is extremely crucial from the development point of view. When education has improved, and the economy moves to a higher level of wages some sectors become uncompetitive forever. So, the economy is transformed, but even though this restructuring is costly,

it is permanent. In the case of the demand for exports or export prices, the restructuring is costly and transitory. Some sectors are dismantled in good times, and have to be rebuilt in bad ones. In other words, when oil prices are high some manufacturing sectors go bankrupt, but when oil prices are low those sectors are reborn. If this process of expanding and shrinking is costly – which is – then the volatility is extremely costly. These reforms do not have this problem.

What is the only problem of these reforms? They tend to be slow and hard to achieve. However, there is a pecking order in terms of speed. For example, new technology or new capital tends to increase production and productivity relatively fast – two to three years.

The second policy that has relatively fast impact are those related to changes in organization practices and better managerial practices. Better supply chain management increases productivity in the same frequency (two to three years). In fact, changes in organization structure have received little attention in policy circles, but they have a tremendous impact in practice. By the way, this is not a statement or public recognition that McKinsey has a huge value added – you know how I feel about this. But this is a statement that indeed there are important reorganizations in industries and companies that have very significant improvements in the way they produce.

The third set of policies are very slow. Improvements in education, health, work safety and labor conditions, and most reforms that rise human capital. These reforms also include crime, corruption, poverty alleviation, income distribution improvements (i.e. reducing inequality), freedom of speech, representativeness and protection of minorities, democracy, judicial system, and in general all those aspects that improve not only the productivity at the firm level, but all those reforms that improve standards of living. The assumption is that all these reforms make the economy “better”. The first set – human capital changes – are easily understood by policy makers and are at the forefront of the policy discussion, while the second set – institutional improvements – are rarely emphasized. This does not mean they are unimportant. My personal view is that politicians have given up even thinking about them. However, some societies have gone through those transformations. The dismantling of the USSR, South Africa after Apartheid, Iraq and all the middle east today, are just some of the examples. In fact, I venture to say that we have seen as many of these type of institutional changes as countries being able to improve their education system – mostly the Asian economies.

Finally, there is an important omission in this discussion. All those technologies that improve the environment. We will discuss these improvements in Chapter 12.

9.2 Shock to the NN

After having discussed shocks that move the BB, it is time to turn the attention to the NN. These shocks are less in terms of variety, but their impact is much harder to understand. As we did before, we go over one shock in detail and then discuss several other alternatives. Because of the complexity of the shocks to the NN we have to be more precise. Hence we discuss the movement in the context of the simplest one of the shocks: Immigration of labor.

9.2.1 Immigration and Population Growth

Figure 9.4 depicts how the NN moves when immigration takes place. This is a pure increase in the supply of labor. Assume that that an economy is in equilibrium (panel(a)) and that suddenly immigration occurs. Of course we assume that those immigrants are going to search for a job. What is the implication of these additional workers in the BBNN? The workers have not found a job yet, so, for the same demand and the same wage in dollars the consumption and production of the country does not change. The current account

continues in equilibrium which means that the BB (both the TB_{BB} and CA_{BB}) has to continue to cross through the exact same point it was crossing before.

However, there are more workers searching for a job. Remember our intuition in Section 8.1.2 of what means a situation of overheating and unemployment. We have to think what is the implication of the immigration on the wage dynamics. The economy was in equilibrium, which means that at the prevailing aggregate demand and wage in dollars people that are searching for a job is roughly the same as the vacancies offered. So, wages are not changing. In this environment, if the immigrants are actively searching for a job, then this extra pressure will lead to a decline in wages. If the wages are falling, that means that at the original demand and wage in dollars the economy is facing unemployment. The NN cannot cross this point (panel (b)).

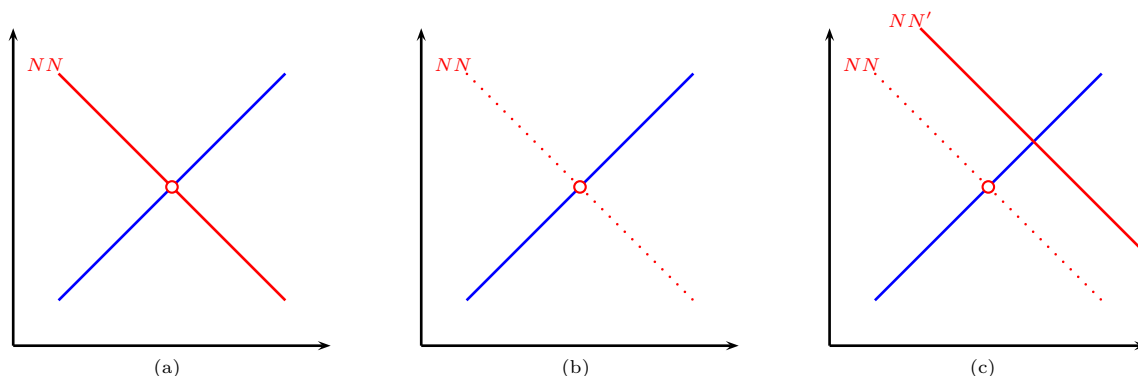


Figure 9.4: Shock to the NN

Where the NN moves? As we did in through out Section 9.1 there are three ways of understanding where the schedule moves. First, if at the original aggregate demand and wage in dollars the economy now is suffering from unemployment then it has to be the case that such point is below and to the left of the NN. So, the new NN needs to be located to the right of where the economy is: See panel (c) in Figure 9.4. Second, let us now move the demand to find where the new equilibrium is. At the original point the economy is suffering from unemployment. If the aggregate demand is increased, companies experience a higher demand for their purchases, which will lead them to try to hire more workers. This increase in the demand for workers compensates the increase in the supply of labor and the pressures on wages to decline are reduced. Therefore, there is a demand large enough where the pressures on wages disappear, wages in dollars are constant, and the labor market returns to equilibrium. This occurs at a larger demand (same wages) and therefore the new NN needs to cross to the right of the original point. Third, and finally, let us move wages to return to equilibrium. Assume that immediately when the immigrants come there is a decline in wages. This movement leads to a decline in the cost of workers, and therefore an increase in hiring. Therefore, there is a wage low enough, that for the same aggregate demand the economy returns to equilibrium. The NN needs to cross above the original equilibrium.

As we did in Section 9.1 let us study what is the implication on the equilibrium after the shock takes place. This is depicted in the animation in Figure 9.5. First, the shock moves the NN up, and then the economy adjusts to the new equilibrium.

The new equilibrium implies a lower wage in dollars and a higher demand. In other words, immigration lowers the wages of the workers but increases the total demand. Is the per-capita demand increasing? probably not. But because there are more workers, the total aggregate demand does.

This leads me to discuss population growth. In fact, population growth is exactly like immigration. In

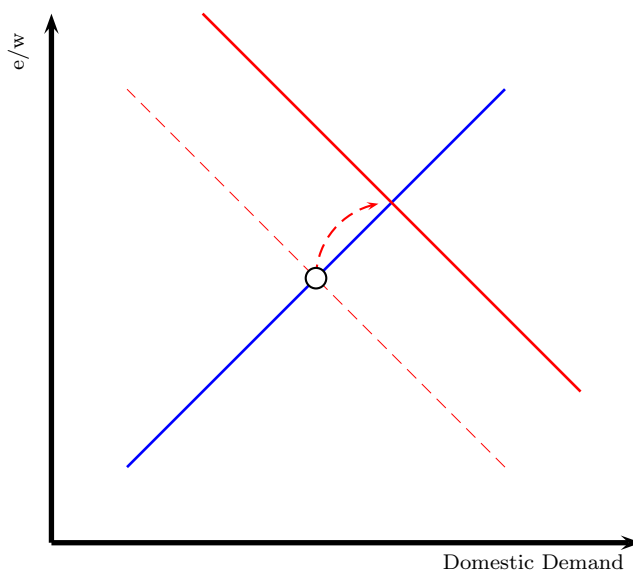


Figure 9.5: Shock to the NN: Animation.

the case of immigration the additional labor force comes from other countries, in the case of population growth the additional labor force comes from the young. In the end, the increase in population leads to an increase in the labor force which ultimately implies a lower real wage. In fact, quite possibly even though the aggregate demand increases, the per-capita demand decreases. So, population growth is impoverishing the country – lowering standards of living both in terms of income and consumption. For many years, this connection was misunderstood. For many years economists and politicians thought that population growth was a way to grow – and indeed the total demand does grow. However, it took hunger and dramatic political crises in the 20th century for this paradigm to be challenged. Nowadays, it is clear that population growth does more harm than good. We will come back to this point in the next chapter – the chapter on sustainability. The reason is that we will see that population growth is not only bad for economic outcomes, but also, political, social, and environmental ones.

9.2.2 Labor Markets

The next three discussions refer to policies and shocks that affect labor markets. We concentrate on labor market participation which also helps to understand issues of migration, on unemployment insurance, and on hiring and firing costs – which also allows us to think about all labor taxes. There are more shocks and policies that affect labor markets – unionization, incentives, etc. – that are not covered here. Labor markets is one of the most complex markets that economists study and it will be impossible to summarize all that research here. Let us concentrate on what I consider the most important ones.

9.2.2.1 Labor Market Participation

Changes in the labor market participation exhibit the exact same patterns as immigration and population growth. In general, if a group of the society decides to “stay home” this is equivalent to a reduction in the labor force, while if the group of the society decides to “join” the labor market, then the supply of labor increases. The “staying home” is like emigration, while the “joining” is immigration. This implies, of course, that wages will tend to go down.

I would like to highlight some differences between immigration, population growth, and labor market participation. The reason is that even though all three look identical in the BBNN – in terms of the schedules moving – they are inherently different.

For example, I believe it is good for the society (in general) if women that were staying home decide to join the labor market. Especially if this decision of joining the labor market is the outcome of them feeling more represented, treated equally, etc.

However, this decision implies a decline in average wages. It is the case that such decision might have a detrimental effect on wages for the whole, but from the welfare point of view, the incorporation of women into the labor market has other beneficial consequences that compensate the drop in wages, that are not entirely captured by the model. These benefits are not collected when the increase in the labor force is due to young men joining, nor when the men joining are foreigners. On the other hand, some countries benefit tremendously of immigration because they can bring individuals with high human capital – or Venezuelans with high entertainment value. Both will have an impact on the NN, but the higher human capital will also have an impact on the BB – displacing it to the right and increasing demand and wages with it. In the end, compensating some of the decline in wages that takes place because of the movement in the NN.

We are going to come back to shocks that are complex and have an impact on both schedules. Women participation in labor markets and high human capital immigration, are two of those examples in which the NN moves to the right, but the welfare and human capital gains move the BB to the right as well, and it is conceivable that the overall effect is unambiguously good – or at least on wages they are just ambiguous.

9.2.2.2 Unemployment Insurance

Some countries have very protective labor laws. There is an extensive literature in economics that studies how these labor market restrictions (protections) affect wages, unemployment, etc. This is a very extensive literature and pretending to summarize it in one section is a little bit too... pretentious. In this section I cover one of the most studied regulations in economics: unemployment insurance.

Unemployment insurance is the resources collected when an individual that was previously working, is suddenly let go. In general, most unemployment insurance offices require individuals to be actively searching for a job in order to be entitled to collect; the individuals always collect a fraction of the original wage; and most of the times, unemployment insurance has an expiration day.

Let us see an interesting example of how distortionary this can be.

A long, long time ago, in a faraway land called France, a crazy king (or ministry of finance) called “Jean Sui Bizarre” implemented the following (bizarre) unemployment insurance policy. Imagine a worker earning 100 a month working for seven years. First, in France working truly does not mean really working *all* the time. They get several weeks of vacation (like five) and about 150 national holidays. So, *working* is a very loose term. In any case, someone “attached-to-a-company-and-sometimes-showing-up-in-the-office-but-always-collecting-money” for seven years, if fired, he/she was entitled to 5 years unemployment insurance earning 70 percent of the original wage. By the way, when the person was working it had to pay taxes (more than 35 percent) while when unemployed it did not have to pay taxes. This law implies that after 7 years

you should go to your boss, slap the bastard, get fired and do not show to work and get a pay increase for 5 years! Would you ever try to keep your job? No, unless you are German! Of course to collect unemployment insurance you have to prove that you are searching for a job... would you search intensively to find and get a job? or would you intensively find a search where you can't get the job?

This is a completely unfair comparison because these numbers are before the massive labor reform they implemented. Nowadays things are much efficient. The salary collected? 65 percent! For how many years? 2! Yeah! As you can see the right wing freaks took over the government and stuck it to the people! From now on you will not make more money unemployed than working!

In Italy they used to have an unemployment insurance for recent graduates from universities. Imagine, an unemployment insurance for someone that has never being employed – Hence, it cannot be unemployed either. No wonder why (we) Italians are so happy.

Of course these laws were changed and today they are just slightly less bizarre. But still labor laws in Europe are extremely protective and lenient. We are going to study two of the most interesting aspects of labor markets. This subsection discusses unemployment insurance, and the next one discusses firing and hiring costs.

Remember the definition of the natural rate of unemployment. This is the rate at which wages do not tend to increase. This means that in a market in which there is some unemployment insurance, there are some individuals searching for a job, some others that are “pretending” to be searching (you have to prove that you are searching to collect unemployment insurance), and some firms are offering vacancies. In equilibrium, the job openings are such that those searching find jobs without a change in wages be required.

In this environment if unemployment insurance benefits are reduced, what is the implication on the NN? To analyze this shock we need to understand if at the original equilibrium (demand and wage in dollars) the shift in the labor law implies pressures to change wages. If the unemployment insurance is reduced, then individuals that were vacationing will start searching for a job more actively. Therefore, we can expect that at the original demand and wage in dollars there are going to be pressures for wages to decline. The original point, therefore, is no longer an equilibrium; it is a point where wages are falling, hence it is a point of unemployment, and it must be located below the NN.

This shock looks identical to an immigration shock, and indeed it can be thought as follows: a reduction in unemployment insurance benefits is equivalent to providing incentives to individuals that were out of the labor market (the ones that were pretending to be searching) to incorporate into the labor market.

9.2.2.3 Hiring and Firing Costs

Hiring and Firing costs are much more complicated to understand. Lets concentrate on one of them, given that their implications are identical. The reason why changes in hiring and firing costs are so difficult to understand is because in general their impact on the natural rate on unemployment is ambiguous.

Assume that to hire a worker a firm incurs in a cost (a fixed cost). What is the implication of this cost? Assume that the economy fluctuates (labor productivity is stochastic) and the firm is interested in hiring a worker. Because the existence of a fixed cost the firm might want to wait for the productivity to increase enough so the profits compensate the fixed cost. This waiting comes from the real option aspect of the hiring cost. This, in principle, looks as if this will lead to a decline in the vacancies and therefore the situation would be one of unemployment. However, the decline in the vacancies also has a counter part on the elimination of jobs. In the same way less vacancies are open the destruction of jobs is also slowed down. A job that is marginally not profitable makes no sense to be eliminated if productivity moves up the next instant. Therefore, it is also optimal to wait before destroying a job. Therefore, there is less creation of vacancies, and less destruction of jobs. What is the impact on unemployment? It depends on which effect

dominates.

There is one important impact on productivity, however. The presence of these types of labor cost implies that the efficiency is lower. Jobs are misallocated. So, this labor market policy, has a bigger impact on productivity than on the natural rate of unemployment. In the end, a reduction in hiring and firing costs can be thought mostly as a productivity increase. These policies and shocks have impact on several dimensions in the economy. This leads to next section's discussions.

9.3 Complex Shocks: *Combinations*

The previous section already discussed some shocks that move primarily one schedule but have the possibility of moving the other. In this section I would like to cover some shocks that are important and produce several movements in the BBNN. In fact, some of them move schedules and the economy at the same time. Of course, the way we will analyze each of them is by decomposing the implications for each – the economy (wages and demand), the external accounts, and the internal accounts (labor market).

9.3.1 Natural Disasters: Production and Lives

We talked about natural disasters before as only having an impact on production. Sometimes the impact on lives is small – for example a flooding will have a big impact on output and a small one on lives – such as the flooding in Thailand in October of 2011. However, clearly that assumption is an oversimplification. In general, these disasters will have an impact on output and also on labor markets. Death has the same impact as emigration in the BBNN. So, a natural disaster moves the BB and the NN to the left. Figure 9.6 depicts the shocks.

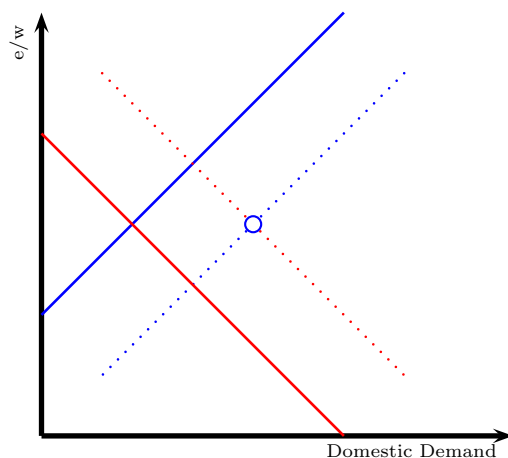


Figure 9.6: Natural Disaster Shock:
Impact on both BB and NN

Notice that unambiguously there is a large drop in the aggregate demand. However, the impact on wages depends on which shock dominates. In Figure 9.6 I have depicted the two to be equally important. If the

impact on production is larger than wages fall, but if the impact on lives is bigger wages increase. Notice that this increase in wages comes from the disappearance of workers.

Finally, wars have the exact same impact as a natural disaster. In the case of civil wars the toll on lives and emigration is extraordinarily large and in general dominates the negative production effect. So, it is fair to say that the NN moves more than the BB. Hence real wages actually go up – however, no one will ever argue that this is good.

9.3.2 Restrictions on International Transactions

The next two subsections discuss policies and shocks that are related to international transactions – from the basic types of restrictions on international trade – tariffs and protectionism arising from subsidies – to the complex dynamics behind capital inflows and capital controls – which we discuss in Chapter 10. Given the tools we have discussed so far, we concentrate on the first shock.

9.3.2.1 Trade Barriers and Protectionism

Trade barriers is one of the most used, and abused, policies in the world. Sectors are protected by raising the tariff of close substitutes that are imported, or sectors are subsidized either directly or indirectly by offering cheap gas and energy, etc.

Assume that a country reduces its trade barriers. Protection can be reduced by lowering its tariffs, by eliminating subsidies to the importing sector – such as the elimination of the subsidies in the cost of electricity, or corporate taxes, etc. – or by reducing the complexity and burden of administrative procedures. In fact, the last one is easily the most costly one of all. When the tariffs are reduced, the BB (both the TB_{BB} and the CA_{BB}) moves to the left. Let us go over the intuition. Assume an economy is on equilibrium and tariffs are lowered. This lowers the domestic price of imports leading to an increase in the demand of foreign goods. There is an increase in imports and leads to a current account deficit. So at the original wage in dollars, and at the original aggregate demand, the economy has a current account deficit. Therefore, the original point needs to be on the deficit region – meaning that the original equilibrium is below and to the right of CA'_{BB} . The movement in the CA_{BB} is depicted in Figure 9.7.

Therefore, a reduction in the tariff creates a deficit in the external accounts, and requires a depreciation of the real exchange rate (a drop in real wages or a depreciation of the nominal exchange rate) to compensate. Wages fall and the aggregate domestic demand needs to fall as well. Clearly, increasing tariffs produce the exact opposite impact; it tends to increase wages and demand. One immediate question is: why don't all countries increase their tariffs? The main reason is that trade protection leads to significant inefficiencies. Economists have highlighted several: Firms and even sectors that should not exist are protected and live for much longer than what is economically sensible. Capital is misallocated because instead of going to the vibrant new sector, goes to the old inefficient and protected sector. Labor does not invest in new skills to build the future, but keeps entrenched in the old rents and old jobs that mostly guarantee that the inefficient status quo will never change. If that is the case, then a reduction in the tariff moves the CA_{BB} to the left, but the elimination of the inefficiency moves the CA_{BB} back to the right (as shown by the green line in Figure 9.7). If the gains in productivity after the elimination of the tariffs are big enough, then the situation actually could improve with the elimination of the tariff.

A very important question, on the other hand, is why countries protect their sectors? One obvious answer is that it allows the countries to enjoy a higher wage, and a higher level of demand. That is certainly the case. But that can't be the reason, because this comes at the expenses of future productivity gains is what we have discussed is correct. The reason is that in the absence of perfect competition there are conditions in which trade protection can be beneficial from the productivity point of view. So its elimination moves the

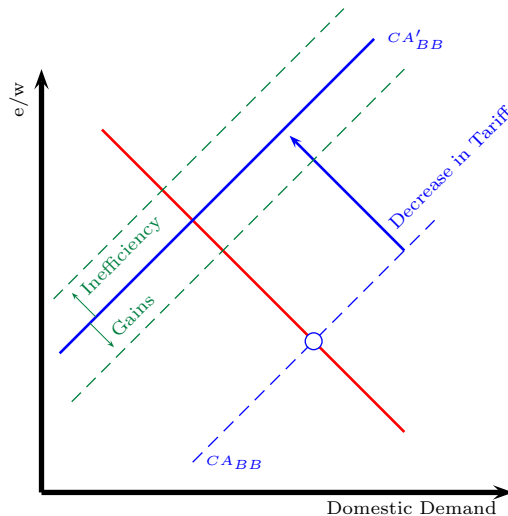


Figure 9.7: Trade Barriers and Protectionism

CA_{BB} twice to the left. Check the notes on comparative advantages for a lengthy discussion on strategic trade policy.⁵

There are, without a doubt, conditions when trade protection is an actually good for productivity, and eliminating the tariff creates an inefficiency. Those situations are not common, and most governments rarely use the policy correctly. However, we should be aware of these conditions to understand the final impact of trade barriers.

⁵See Krugman (1987) for an extremely good and intuitive discussion of this topic. Also see Chapter 14 for a discussion on the gains from trade and the points discussed by Krugman.

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