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The Tragedy of the Euro

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PHILIPP BAGUS

The Eurosystem, the monetary system in the European Monetary Union (EMU), has brought the euro to the verge of collapse. We can understand how this situation arose in terms of the theory of negative external effects and the tragedy of the commons. Poorly defined property rights in money can cause negative external effects to be neglected. In practice, the EMU has evolved into a tragedy of the commons because several independent national governments have made use of the European Central Bank (ECB) to finance their deficits indirectly.

The theory of the tragedy of the commons states that a publicly owned good will tend to be overexploited and disappear. The euro and its purchasing power are following this course. The euro is threatened by independent states' trying to finance their deficits via the ECB and to externalize part of their deficit costs in the form of higher prices in the EMU. This mechanism of a tragedy of the commons has contributed to the current sovereign-debt crisis in Europe. In this article, I explain how a tragedy of the commons exists in the EMU because of public property in money and how it is caused by the possibility of financing deficits through a single central bank.

External Costs and the Tragedy of the Commons

A *tragedy of the commons*, a term coined by Garrett Hardin (1968), is a special case of the external-costs problem. External costs generally occur when property rights are not well defined or defended and a single privileged actor can externalize costs on

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others (Mises 1998, 651).¹ If the actors are not fully responsible for the effects of their actions, they will not take into account all the consequences of these actions. This situation is exemplified by a factory owner who is allowed to dump waste in a lake.

External costs also occur when fiat money is issued. Fiat money is a medium of exchange that the issuer (the state) puts into circulation backed by no collateral except the paper on which the notes are printed. Residents are then forced to accept this kind of money as a means of payment (legal tender). Fiat money thus represents an encroachment on the principle of freedom of contract. People cannot do with their property what they want but are forced to accept fiat money in exchanges and to use it for tax payments. If no one had to accept public paper money, no external costs would be incurred. People could simply decide not to accept fiat money.

Given the absent private-property rights in money production and a monopolist producer of fiat money, the benefits of the production of money accrue to its producer, and external costs take the form of rising prices and, in most cases, a lower quality of money.² These external costs are imposed on all users of fiat money. The additional monetary units allow their holders to bid up prices.

The main beneficiary of the central bank's increase in money supply is the government, for two reasons.³ First, increases in the money supply lead to profits called "seigniorage." Central-bank profits are remitted to the government at the end of the year. Second, central banks can finance government directly by buying government bonds or indirectly by accepting government bonds as collateral for loans to the banking system.

In a tragedy of the commons, a specific characteristic is added to the external-cost problem, and several actors exploiting one property can externalize costs onto others. Not only can one factory owner dump waste into the private lake, but two or more can do so also. Not only can one central bank produce base money, but several can.

The traditional example of a tragedy of the commons is common property such as public beaches or schools of fish in the ocean. They are exploited without regard to the disadvantages that can be partially externalized. The users obtain benefits, but the costs are externalized. By fishing the school, a fisher obtains the

1. We are talking here about positive or negative consequences resulting from ill-defined or ill-defended property rights. All actions have psychological or monetary consequences. Keeping roses in your garden can have positive or negative effects on your neighbor's welfare. These effects are usually called psychological external effects. Building a movie theater next to a restaurant will probably have positive monetary effects for the restaurant owner and negative external effects on alternative restaurants. These effects are usually called pecuniary external effects. We are concerned here with neither psychological nor monetary effects of actions, but the effects of actions resulting from ill-defined or ill-defended property rights. We are concerned with technological externalities rather than with pecuniary or psychological ones.

2. Money's quality in the form of a central bank's assets, management, and freedom from inflationary interests is a central determinant of its value (Bagus 2009).

3. See Selgin and White 1999 for an explanation of the fiscal motives for government interventions in the monetary sphere.

benefits; however, all fishers bear the cost of a reduced school size. If someone has private-property rights in the school, he will fully assume the costs of reducing the school's size and will have an incentive to care for its long-term preservation. When the school is public property, however, everyone has an incentive to overfish (that is, to overexploit) the resource because the benefits are internalized, and the costs are partially externalized. All benefits go to the first fisher, but the whole group shares the damage suffered through reduction of the school. In fact, each fisher has an incentive to catch fish as fast as possible, knowing the other fishers' incentive.

The concept of the tragedy of the commons can be applied successfully to other areas, such as the political system. In a brilliant article, Earl Brubaker applies it to the public budget: "[T]he budgetary process converts private property into common property 'up for grabs'" (1997, 356). The public treasury is open for exploitation by interest groups. The result is a push for a continuous increase in the public budget and a fight over its distribution.

Overexploitation of public property can be restricted in several ways. The simplest way is to privatize public property and to define and defend private-property rights. Another solution is to use moral persuasion and to educate the actors who exploit the commons. For example, fishers can be persuaded to voluntarily restrict their exploitation of the school. A further option is to regulate the commons to restrict its overexploitation. Garrett Hardin (1968) calls such regulated commons "managed commons": the government limits the exploitation. An example is the introduction of fishing quotas that provide every fisher a certain catch per year. Thus, each fisher receives a monopoly right that he will try to exploit fully. Because he is the only owner of this right, there are no external costs. Thus, overexploitation is prevented.

The Tragedy of the Commons and the Euro

Although the external effects of a monopolistic money producer are common in the Western world, the euro's establishment has created a unique layer of external effects and a tragedy of the commons. Within the EMU, all governments can use the ECB to finance their deficits indirectly. So there is a tragedy of the commons in base-money production. As already noted, a central bank can finance a single government's deficits by buying government bonds or by accepting them as collateral for new loans to the banking system. Within the EMU, several governments can finance themselves via a single central bank, the ECB.

When governments in the EMU run deficits and issue bonds, a large amount of these bonds are bought by the banking system. The banking system buys these bonds because they are accepted as collateral by the ECB in its lending operations.⁴

4. See ECB 2008 for the operation of the EMU and the ECB's collateral rules.

The banks presenting the government bonds as collateral receive new base money from the ECB. The banks then create new money by credit expansion, exchanging the money against government bonds and using the government bonds to refinance with the ECB. The end result is that the government has financed its deficits with new money, and the banks have received new base money by pledging the bonds as collateral.

This scheme's incentives are clear. The first users of the new money benefit. Governments and banks have more money available; however, prices have not yet been bid up. When governments start spending the money, prices are bid up, and incomes increase, mainly in the deficit countries. As prices and incomes increase in the deficit country, the new money flows abroad, where the effect on prices has not yet been felt. In this way, the new money spreads through the whole monetary union.

The deficit countries that first use the new money win. They have a higher monetary income before prices start to rise. They benefit at the cost of the new money's last receivers, who are mainly in foreign member states that do not run (such high) deficits. The last receivers lose as their incomes start to rise only after prices have increased. The benefits of the increase in the money supply go to the first users, whereas all users of the currency share the damage to the monetary unit's purchasing power. The consequence is a tragedy of the commons. Any governments running deficits can profit and offer the gift of a more balanced budget to its voters at other governments' cost.

In fact, this setup can be compared to a situation in which several individuals possess a printing press for the same fiat currency. These individuals have the incentive to print money and spend it, bidding up prices. The benefits in the form of higher income go to the owners of the printing press, whereas all users of the currency bear the costs of the action in the form of money's reduced purchasing power. Moreover, there is an incentive to print money as fast as possible because if one printing-press owner does not engage in printing, others will do so and benefit while the loss in purchasing power affects all other printing-press owners. We have here a "pure" tragedy of the commons because exploitation of the resource has no limits.⁵ As in the case of public natural resources, overexploitation leads to complete destruction of the resource. In this case, the money ends in a hyperinflation and a crack-up boom.

Although the analogy of several printing presses for the same currency within the Eurosystem is striking, it is not exact. The differences between the two setups explain why no pure tragedy of the commons occurs in the Eurosystem and why the euro has not yet disappeared. One difference is that deficit countries cannot directly print euros. They can issue only their own government bonds, and they have no guarantee that banks will buy these bonds and use them as collateral for new loans from the ECB.

5. On the incentives to convert public property into "pure" tragedies of the commons, see Bagus 2004.

For several reasons, however, the scheme might not work. First, the operation might not be attractive for banks. The interest rate offered for the government bonds might not be high enough in comparison with the interest rates that banks pay for loans from the ECB. Governments might then have to offer higher yields to attract bank buyers. Second, default risk on the government bonds might deter banks from purchasing them. This risk, however, is reduced by implicit bailout guarantees.

The euro was formerly interpreted as carrying a bailout guarantee from other member states (Argyrou and Tsoukalas 2010; Browne 2010; Samuelson 2010). It was understood that once a country introduced the euro, it would never leave the EMU. In fact, the Maastricht Treaty does not allow exit from the monetary union (Bandulet 2010, 57). The euro was seen as a political project and a step toward political integration. A member state's default and consequent exit would be interpreted as a failure not only of the euro, but also of the European Union. Therefore, default was politically considered next to impossible. It was thought that in the worst case the stronger member states would support the weaker ones. Before a default occurred, countries such as Germany would guarantee the bonds of the Mediterranean nations (popularly designated the PIGS—Portugal, Italy, Greece, and Spain). As Daniel Tarullo, a member of the U.S. Federal Reserve Board has stated, “For years many market participants had assumed that an implicit guarantee protected the debt of euro-area members” (2010). This expectation reduced considerably the default risk of government loans from member states. The implicit guarantees, indeed, have now become explicit. Greece has been granted a rescue package of €110 billion from the Eurozone and the International Monetary Fund (Thesing and Krause-Jackson 2010). In addition, €750 billion has been pledged for further bailouts of other member states (Nazareth and Serkin 2010).

Third, the ECB might stop accepting government bonds as collateral. The ECB requires a minimum rating for bonds accepted as collateral. Until the financial crisis of 2008, the minimum rating was A-. In the financial crisis, it was reduced to BBB-. The minimum rating implies the possibility that government bonds will not be accepted as collateral because their ratings are too low. However, the ECB has been accommodating with regard to the collateral rule. The reduction of the minimum rating to BBB- was planned to expire after one year. When it became probable that Greece would not maintain at least an A- rating, the altered rule was extended for another year. Finally, the ECB, despite its stated principle of not applying special rules to a single country, declared that it would accept Greek debt even if it were rated as junk (Jones 2010).

Fourth, a liquidity risk exists for banks that use the ECB to refinance themselves by pledging government bonds as collateral. Government bonds have longer terms than the loans granted by the ECB—traditionally one-week and three-month loans. During the crisis, the maximum term was increased to one year. Nevertheless, most government bonds have still a longer term of up to thirty years. A risk exists that the bonds' rating will fall over their lifetimes and hence that they might no longer be

accepted as collateral by the ECB. In this case, the ECB would not roll over the loan collateralized by the government bonds, possibly causing liquidity problems for banks. Yet the risk of such rollover problems is relatively low because the ratings are supported by the implicit bailout guarantee and political willingness to save the euro project. Another part of the liquidity risk is that interest rates charged by the ECB might be increased and, finally, be higher than the fixed rate of a longer-term government bond. This risk can be reduced by a sufficient interest spread between the yield of the government bond and the interest rate required by the ECB.

Fifth, “haircuts” do not allow full refinancing. A bank offering €1,000,000 worth of government bonds as collateral will not receive a loan of that amount from the ECB, but rather a smaller amount. The ECB distinguishes five different categories of collateral, which require different haircuts. Government bonds require the smallest haircut, which subsidizes their use as collateral vis-à-vis other debt instruments.

Sixth and most important, the ECB might not accommodate all demands for new loans. More collateral might be offered than loans available at the ECB. With a restrictive monetary policy, not every bank offering government bonds as collateral receives a loan. However, for political reasons, especially the desire to continue the euro project, one can expect that the ECB will accommodate such demands. In fact, during the recent financial crisis the ECB started offering unlimited liquidity to markets—that is, satisfying every request for a loan provided sufficient collateral was offered.

As we have seen, in the Eurosystem we do not find a pure tragedy of the commons, yet this system is approaching such a pure case as the ECB directly buys government bonds. The ECB announced the direct purchase of government bonds in May 2010 (Tweed and Meier 2010) to save the euro project. If a government has deficits, it can issue bonds, which are bought by banks and then by the ECB. With direct buying, however, the ECB no longer makes a detour via its lending operations. Thus, most of the aforementioned risks for the banking system disappear.

In the tragedy of the euro, an incentive exists for governments to have higher deficits, issue bonds, and make the whole euro group bear the costs in the form of the euro’s lower purchasing power. Politicians therefore will tend to run high deficits. Why pay for your expenditures by raising unpopular taxes? Why not issue bonds that will be purchased by the creation of new money, even if that issuance finally increases prices in the whole EMU? Why not externalize the costs of the government expenditure that is so vital to securing political power?

The tragedy is aggravated by the typical shortsightedness of politicians in democracies (Buchanan and Tullock 1962; Hoppe 2001). Politicians tend to focus on the next elections rather than on the long-term effects of their policies. High public spending might make voters vote more favorably for these politicians in the next election. Financing the spending by deficits rather than by unpopular taxes delays the problem. Politicians in the EMU can externalize the costs of government

spending in two ways: geographically and temporarily. In the former, some costs are paid in the form of the reduced purchasing power of money in the whole Eurozone. In the latter, other politicians in the remote future may bear the sovereign-debt problems caused by deficits and their accompanying restrictions and spending cuts that a bailout can bring about. Moreover, these spending cuts can be explained as a necessity and as imposed from the outside.

There consequently are strong incentives to run high deficits. As in the printing-press example, an incentive exists for an EMU government to run a higher deficit than the other EMU governments. If a country runs lower deficits than the rest, it pays for the others' deficits in the form of disproportionately rising prices. Only if a country runs higher deficits than the others can it profit from a redistribution within the EMU. Monetary incomes must rise faster than the currency's purchasing power falls.

The tragic incentives stem from the fact that one central bank indirectly finances the deficits of more than one independent sovereign state. These incentives were known when the EMU was planned. Indeed, the idea of a single currency had been criticized in popular and scholarly outlets. In the United States, Barry Eichengreen (1991) questioned the idea based on Robert Mundell's (1961) work on optimal currency areas, pointing to a lack of labor-market flexibility.⁶ Eichengreen (1992) also doubted that the fiscal restraints in the Maastricht Treaty would be effective because they contained loopholes. In the European community, the single currency was criticized most harshly in Germany. Renate Ohr and Wolf Schäfer (1992) and Manfred Neumann, Renate Ohr, and Roland Vaubel (1998) published manifestos in the *Frankfurter Allgemeine Zeitung* signed by 62 and more than 160 German economics professors, respectively. The academics maintained that the single currency came too early—that is, without a political union. The different states' economic structures would be too different still.

Despite these academic protests and against the will of the majority of the German population, who were not allowed to vote on the vital question of a single currency, politics proceeded on their way toward the euro (Bandulet 2010, 69). Indeed, the euro is a political project. Regardless of academic warnings about the project's sustainability, politicians saw the euro as a way to push forward European integration. Moreover, French president François Mitterrand saw the single currency as a way to get rid of the dominance of Germany's currency, the Deutsche Mark. Germany's chancellor Helmut Kohl, who was glad to manage reunification without French resistance, regarded the single currency as a way to ensure peace in a Europe with a unified Germany. As Hans A. Larsson states, "The EMU became an opportunity for the French to get a share of the German economic power. For the German Federal Chancellor Kohl, the EMU was an instrument to make the other EC member

6. Jonung and Drea 2010 provides a survey of the skepticism among U.S. economists toward the single currency.

states accept the German reunion and consequently a larger and stronger Germany in the heart of Europe” (2004, 163).⁷ Academics’ protests against the single currency resulted, however, in the introduction of “managed commons” regulations to reduce the external effects of the tragedy of the commons. The Maastricht Treaty provided two main instruments to protect the euro’s virtue and to ensure fiscal discipline: the debt and deficit clauses as well as an independent ECB (Eichengreen and Wyplosz 1998).

The ECB’s statute prohibits it from directly buying public debt from the issuer. The bank voluntarily abstained from buying government bonds on the secondary market until 2010. Yet this provision is not essential. The ECB has always financed governments’ deficits indirectly by accepting the governments’ bonds as collateral. When the sovereign-debt crisis threatened the euro’s existence in May 2010, the ECB announced it would buy government bonds directly. The political will to continue the euro project overrode economic concerns.

The debt and deficit clauses of the Maastricht Treaty were institutionalized with the stability and growth pact (SGP) adopted in 1997. The SGP permits certain “quotas” for the exploitation of the common central bank. The quota states that a government’s deficit should not exceed 3 percent of gross domestic product (GDP) and that total government debt should not exceed 60 percent of GDP. With this regulation, the incentive was always to be at the maximum of a 3 percent deficit financed indirectly by the ECB. Countries with a 3 percent deficit would be able partially to externalize their costs onto the member countries with lower deficits in the form of higher prices.

In retrospect, it is clear that the regulation of the commons failed. The main problem was that the SGP is an agreement of independent states without credible enforcement. Automatic sanctions, as initially proposed by German finance minister Theodor Waigel, were not included. In fact, even when countries violated the pact, only warnings were issued to them. Penalties were never imposed. More important, politically influential countries, such as France and Germany, which could have defended the SGP, started to violate its provisions by having more than 3 percent deficits in 2003. Germany violated the provisions from 2003 to 2006 and France from 2003 to 2007. With a larger number of votes, they and other member countries were able to sustain the decision that no penalties be enforced. The SGP therefore failed utterly, opening a Pandora’s box in the form of a tragedy of the commons with its perverse incentives. For 2010, all but one member state is expected to have a budget deficit higher than the pact’s 3 percent maximum; indeed, the general European debt ratio to GDP is 88 percent.

7. Jonas Ljungberg offers a similar assessment: “By relinquishing *Bundesbank* hegemony among the central banks Kohl could get the compliance of Mitterand for the German reunification” (2004, 10). Roland Vaubel (2010) provides historical evidence. For the interesting political relationship between Mitterand and Kohl as well as their interests and strategies regarding the single currency, see Marsh 2009.

Table 1
Annual Rate of Growth (%) in Real GDP, Europe, 2000–2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Euro area (16 countries)	3.9	1.9	0.9	0.8	2.2	1.7	3.0	2.8	0.6
European Union (27 countries)	3.9	2.0	1.3	1.3	2.5	2.0	3.2	2.9	0.7
Non-EMU	4.7	4.1	3.9	4.8	5.6	5.3	6.4	5.5	1.4

Source: European Commission 2010. Author's calculations.

Table 2
Government Budget Deficits as a Percentage of GDP, Europe, 2000–2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Euro area (16 countries)	0.0	1.9	2.6	3.1	2.9	2.5	1.3	0.6	2.0
European Union (27 countries)	-0.6	1.4	2.5	3.1	2.9	2.5	1.4	0.8	2.3
Non-EMU	0.6	1.5	2.4	2.3	1.4	1.1	0.8	0.2	2.0

Source: European Commission 2010. Author's calculations.

Other evidence shows that SGP failed to support growth and stability in the form of lower deficits. Members of the Eurosystem, almost from its inception, have underperformed compared to non-euro EU members. The real growth of GDP in the euro area has been less than the growth of the states forming the European Union and less than the average of the growth in member states that do not belong to the EMU (table 1). Deficits are not even consistently lower in the euro area than in the European Union as a whole (table 2). In fact, non-EMU members have experienced, on average, lower deficits.

Greece, Spain, and the Future of the Euro

Greece's fiscal development may symbolize the incentives of the tragedy of the euro. Three factors combined to generate excessive deficits when Greece entered the EMU. First, Greece entered at too high an exchange rate, which made many workers uncompetitive compared with the more highly capitalized workers in the northern countries. In this situation, the options included (1) lowering wage rates to make the workers more attractive to employers, (2) increasing government spending to subsidize unemployment (with unemployment benefits and early retirement schemes), and (3) directly employing these uncompetitive workers (as public employees). Owing to

strong labor unions, the first alternative was not viable, so politicians chose the second and third options.

Second, by entering the EMU, Greece suddenly became supported by an implicit bailout guarantee from the ECB and the rest of the EMU. Thus, interest rates on Greek government bonds fell and approximated German yields. The marginal costs of higher deficits were reduced. A government with a fiscal history and an economic structure such as Greece's could take on debt at almost the same rate as Germany, a country with a conservative fiscal history and a trade surplus.

Third, the effects of reckless fiscal behavior could in part be externalized to other members of the EMU. The ECB accepted Greek government bonds as collateral for their loans. European banks could buy Greek government bonds (always paying a premium in comparison with German bonds) and use these bonds to gain a loan from the ECB at a lower interest rate (now at 1 percent interest) in a highly profitable deal.

The banks bought the Greek bonds because they knew that the ECB would accept them as collateral for new loans. Because the interest rate paid to the ECB was lower than the interest received from Greece, there was a demand for these Greek bonds. Without the acceptance of Greek bonds by the ECB as collateral for its loans, Greece would have had to pay much higher interest rates than it did. Greece was therefore bailed out or supported by the rest of the EMU in a tragedy of the commons for a long time.

The costs were partially shifted to other EMU countries. New euros were effectively created by the ECB, accepting Greek government bonds as collateral. Greek debts were monetized, and the Greek government spent the money it received from the bonds to secure support among its population. As prices started to rise in Greece, money flowed to other countries, bidding up prices throughout the EMU. Outside Greece, people's buying costs rose faster than their incomes. This effect evinced a redistribution in favor of Greece. The Greek government was being bailed out by a constant transfer of purchasing power from the rest of Europe.

Although the Greek situation set off the sovereign-debt crisis, the Spanish government's deficits threatened markets more profoundly. The European banking system might have resisted a Greek default, but a Spanish default probably would have taken the European system down. In fact, banks headquartered in the Eurozone had an exposure of \$206 billion to Greece compared to one of \$727 billion to Spain (Bank for International Settlements 2010). Before the crisis, Spain had been in a fundamentally better position than Greece. Spain's deficits had not been higher than 1 percent of GDP in the first years of the euro, and the government even enjoyed a surplus in 2005 and 2006.

The good condition of Spanish public finances is not surprising, given that the Spanish economy grew more than 3 percent each year from 2000 to 2007. The Spanish boom was the result of the Aznar government's deregulations and privatizations as well as an impressive construction boom. Interest rates had fallen significantly with the introduction of the euro—a fall caused by the ECB's expansionary policies

and supported by the EMU's implicit guarantees—and thus approximated German rates. In contrast to Greece, Spain increased not only its public debt, but also its private debt to dangerous levels. Greece currently has public debts equal to 120 percent of GDP. However, private Greek debts are merely 90 percent of GDP. Spain's public debts are much lower at 55 percent of GDP, but private debts equal more than 200 percent of GDP (Rallo 2010).

Like Greece, Spain suffered from excessively high wage rates and a lack of competitiveness that was at first compensated by a construction and consumption boom induced by low interest rates. In the wake of the financial crisis, the housing bubble burst, and the government began to increase spending. Unemployment-benefit expenditures increased. The government supported the banking sector and the automotive sector. It subsidized highly indebted construction contractors with infrastructure projects. As public debts and deficits soared, the market became nervous. The Spanish government did little to limit spending and essentially assumed private debts by subsidizing banks and construction contractors. Only after massive pressure did the Spanish government in May 2010 announce concrete spending cuts of €15 billion over the next two years. Thus, the EMU's setup with its tragedy of the commons and its implicit guarantees allowed Spain to ignore its soaring deficits for a long time.

The spread of the European debt crisis has been contained for now. Greece and Spain have stabilized and successfully placed public debts on the markets. Nevertheless, the euro's future looks grim. The inflationary temptation characterizing the euro area remains in place. For the future, three possible scenarios warrant consideration.

First, the SGP will finally be enforced. Although strong political resistance will unfortunately make this possibility unlikely, politicians nevertheless have discussed automatic sanctions and even clauses that would force countries to leave the EMU.

Second, the more conservative member states will refuse to continue bailing out the more profligate ones. The economically stronger states will force the weaker ones to enter bankruptcy and to leave the monetary union. In this case, the euro would actually emerge strengthened from the crisis. Or a stronger state, such as Germany, may leave the EMU, which might trigger a loss of confidence in the euro and induce a hyperinflation. Although these possibilities are not unrealistic, they do not represent an imminent occurrence. Politicians have shown that they want to stick to the euro. German chancellor Angela Merkel has stated: "If the euro fails . . . Europe fails and [with it] the idea of European integration" (qtd. in "Merkel warnt" 2010). She has also pushed the bailout for Greece through Germany's Parliament, a move that was highly unpopular in Germany and probably caused her party to lose an important election.

Third, countries will continue to increase their deficits, attempting to externalize the costs. They will yield to the incentives and participate in a spending race, which will lead to accelerated inflation. Although this scenario may be the most likely one, it will probably take time to play out. Investors and entrepreneurs remain committed to euro-denominated contracts. It takes time before low-quality money falls because of

disuse, causing a currency collapse. A currency is commonly rejected as a means of payment only in a hyperinflation. This outcome may take a long time because the public rescue packages have sustained the euro's credibility.

Conclusion

The concept of external effects and the tragedy of the commons can be applied fruitfully to the case of money. Base-money production is organized monopolistically through central banks in our modern monetary systems. Because property rights in money have not been defended, fiat money imposes on the population external costs in the form of a lower purchasing power of money.

The EMU is a unique case because it represents a genuine tragedy of the commons in base-money production. Member states in the EMU to some extent can externalize the costs of reckless fiscal behavior. Any government whose bonds are accepted as collateral by the ECB can use the central bank to finance its expenditures indirectly. The costs of this strategy are in part externalized to other countries when the newly created money bids up prices throughout the monetary union.

This process results in a tragedy of the commons because any government can indirectly use the ECB to finance its deficits. Each government has an incentive to accumulate higher deficits than the rest of the EMU because its costs can be externalized. Therefore, the Eurosystem has an inbuilt tendency toward continual losses of its currency's purchasing power, which might finally result in the euro's complete collapse. Notwithstanding the independence given to the ECB and the SGP, they have failed to manage the commons so far, resulting in the current sovereign-debt crisis. Both of these shields against fiscal deficits have proved to be ineffective. The Eurosystem offers an incentive for even traditionally fiscally conservative countries to forgo their fiscal discipline.

For now, a €750 billion bailout plan and the ECB initiative to buy government bonds have stopped the rise of bond yields and contained the danger of sovereign insolvency. Yet the same incentives remain in place, and the euro's future remains bleak. For the euro to survive, the self-destructive tendencies of the tragedy of the commons must be contained. Government deficits must be controlled and effectively restricted by credible sanctions and penalties.

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