CHAPTER 5

Currency Demand in the Underground Economy

So we have concluded that a great deal of the world's cash supply has to be floating around in the underground economy, but what exactly does that mean? The underground economy includes a huge range of blatantly illegal activities, for example, the drug trade, extortion, bribes, human trafficking, and money laundering, just to name a few. But it also includes ordinary people—a great many of them—who use cash on occasion, say, when hiring babysitters or painters, to get a lower rate and to sidestep onerous reporting requirements. And it definitely includes small cash-intensive businesses that prefer to get paid in cash so they can underreport revenues to tax authorities. In some countries, like the United States, the underground economy very importantly includes firms that save on costs by hiring illegal immigrants at low wages, enabling them to undercut firms that hire workers legally.

One can argue in all these examples that if there were no cash, criminals and tax evaders would simply find a different way of doing things. But that is easier said than done, especially for large-scale criminal enterprises or businesses that routinely underreport revenues. Many other methods exist, but compared to cash, they are not as safe for routine use on a large scale and generally not as liquid. There are only so many places you can cash in your uncut diamonds or your gold coins, and licensed dealers are subject to reporting requirements. Yes, crime will continue with or without cash, but for very good reasons, cash is a medium of exchange highly favored by the underground economy, and the underground economy accounts for a significant share of the demand for cash.

THE USE OF CASH TO FACILITATE TAX EVASION

The largest holdings and use of cash in the domestic underground economy likely derive from residents of all types (e.g., citizens, green card holders, employers of illegal immigrants) who are broadly engaged in legal activities but who are avoiding taxes, regulations, or employment restrictions. These are mostly otherwise law-abiding citizens who engage in tax evasion opportunistically, because they know that by using cash, they can hugely reduce their chances of ever getting caught. Survey evidence supports the view that these individuals regard their tax transgressions as morally wrong but take the position that if the laws cannot be easily enforced, they are meant to be pliable.[1] The moral questions are indeed complex; no one wants to live in a society where every minor rule and regulation is rigidly enforced. Such a regime is incompatible with most people's perception of what it means to be a truly democratic society.

However, some transgressions are not so minor or so innocent. Tax evasion, which—as we shall see shortly—is truly massive, creates what public finance economists call a "horizontal equity" problem. When some people don't pay the taxes owed on their true incomes, it means that other people—for example, law-abiding citizens with identical pre-tax incomes—have to pay more. By the same token, if some firms use cash payments to get around anti-pollution regulations while others don't, it gives the former an unfair competitive advantage and of course degrades the environment. When construction contractors use cash to employ illegal immigrant workers at low wages, they disadvantage both domestic workers and other construction firms that hire only legal workers and keep all payments out in the open. In addition to its distributional implications, tax evasion also hampers the efficiency of the tax system.[2] What does that mean? If taxes can be avoided more easily in cash-intensive businesses, then too much investment will go to them, compared to other businesses that have higher pre-tax returns but lower post-tax returns. This kind of inefficient distortion arises when any sector succeeds in getting unwarranted extra tax breaks for itself.

Again we begin with the United States, because more data are available than for most other countries. The key source of data comes from a program of intensive random tax audits, in which the Internal Revenue Service (IRS) effectively picks someone's name out of a hat and then goes all out to check every aspect and detail of their tax return.[3] This is not a pleasant situation for the auditee. Anyone who has studied public finance, however, knows that there is really no other effective alternative to random evaluation trials for gaining meaningful statistics that are not plagued by biases in sample selection. The IRS has used these intensive audits, combined with an array of other information (e.g., investigations into high-income-earner tax shelters), to arrive at an overall estimate of unpaid taxes. For 2006, the most recent year reported, the IRS found that the "tax gap"—the difference between taxes voluntarily paid and taxes due—was $450 billion. This comprises tax evasion in many different sectors, including underreporting of business income, wage income, and rental income.[4] Of the $450 billion, the IRS expected to recover $65 billion, leaving a net tax gap of $385 billion. Put differently, roughly 14% of estimated 2006 federal taxes, or 2.7% of 2006 GDP, will never be paid.[5]

By far the most important area of tax noncompliance comes from underreporting of business income by individuals who conduct a significant share of their transactions in cash. The problem extends to individuals operating as partnerships or small corporations. Overall, small business owners report less than half their income and account for 52% of the tax gap. Since nominal GDP has grown by roughly 30% since the last IRS benchmark year (2006), and assuming tax evasion has grown proportionately with GDP (which seems quite conservative, given that marginal tax rates have significantly increased and the size of the underground economy generally increases when growth tails off), this would translate to a 2015 net tax gap of $500 billion for federal taxes alone. True, some component of this gap is due to tax havens (e.g., in the Caribbean or Panama), perhaps 10–20%.[6] But a large fraction of the remaining tax evasion derives from areas where there is no third-party information available,[7] which of course rules out checks, credit card payments, and the like. That is, of the remaining tax gap, a large fraction (say, at least 50% and probably more) derives from cash-intensive areas.[8]

In the United States, state taxation is roughly 36% of the amount of federal taxation, and local taxation adds another 27% (so combined state and local tax collection is about two-thirds of federal tax revenue).[9] Thus, accounting for evasion of state and local taxes would presumably raise total tax evasion estimates significantly, though not necessarily proportionately, because the tax mix is different. Most states have income taxes (where noncompliance is presumably similar to that for the federal income tax), as well as sales taxes, where the scope for noncompliance in cash transactions is enormous.

To reiterate an important point: the tax gap is sufficiently huge that if eliminating cash can close it by as little as, say, 10%, the revenue gains would be quite substantial. By the crude back-of-the-envelope estimates done here, the gains would be on the order of $50 billion from federal taxes alone and perhaps another $20 billion for state and local taxes.[10] And this calculation does not take into account the efficiency costs of tax evasion. Nor does it include illegal activity, on which taxes are still owed in principle. (Famously, the Federal Bureau of Investigation finally caught up with Depression-era gangster Al Capone by charging him with income tax evasion.)

Tax Evasion in Europe

Because the United States is a relatively low-tax country, and because it relies so heavily on income taxation as opposed to VATs (value-added sales taxes), compliance is likely higher than in most advanced countries.[11] Unfortunately, indirect methods and partial data are all that exist to estimate tax evasion for Europe, as most European countries do not report overall results for the kind of detailed randomized audits that the United States has released.[12] Michigan economist and public finance expert Joel Slemrod cites internal Organisation for Economic Co-operation and Development (OECD) estimates of noncompliance for VATs, which are very important in Europe, of 4–17%.[13]

We do know that tax levels are higher in Europe than in the United States and regulations are (arguably) more burdensome. Most research suggests that the underground economy is correspondingly higher in Europe as well.[14] Estimates vary widely, and there is a huge amount of uncertainty; governments put vast resources into measuring conventional aboveground income, and yet government statisticians acknowledge a broad error band around their estimates. Information on the underground economy is limited, and estimates necessarily involve indirect approaches. Definitions also differ across studies of the underground economy, for example, whether or not it includes all criminal activity or just tax and regulatory evasion.

One influential methododology[15] has been developed by Austrian professor Friedrich Schneider, a pioneer in efforts to measure the underground economy. Schneider's empirical approach forms estimates based on a variety of monetary and labor market indicators, including the labor force participation rate, tax rates, the quality of public service delivery, and other indicators. Figure 5.1 shows the results. It is important to note that the particular definition of underground economy underlying these estimates is a narrow one that does not include illegal or nonmarket activities. Rather, the measure aims to capture all (otherwise) legal market-based production of goods and services that are deliberately concealed from authorities to avoid income, sales, or value-added taxes; social security contributions; certain labor standards like minimum wage or maximum working hours; certain administrative inconveniences; or any combination of these.[16]

Under this narrower definition of underground economy that does not include many types of illegal activities, the United States and Switzerland are estimated to have among the smallest underground economies, at 7.1% and 7.9% of GDP, respectively. Toward the other extreme are Spain at 19.6%, Italy at 22.3%, and Greece at 25.0%. Intermediate are France at 12.0%, Germany 13.4%, and the United Kingdom 10.6%. These figures are averages of annual estimates for 2003–2016; Schneider's approach does show some downward trend for most (but not all) countries. Indeed, it is likely that during the depths of the post–financial crisis

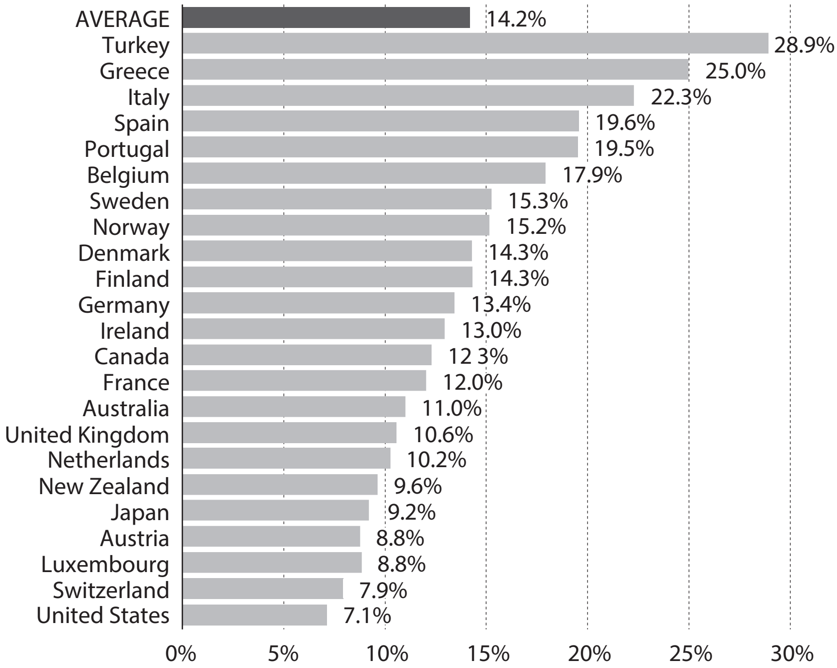

Figure 5.1: Underground economy as percentage of official GDP. Source: Schneider (2016), updated from Schneider, Buehn, and Montenegro (2010).

recession, with large numbers of people losing their jobs in the formal economy, a larger fraction was moonlighting off the books.

Taking the long-term average estimated size of the underground economy in the United States as a share of GDP, which again includes only the shadow economy and excludes most illegal activities, it would come to $1.3 trillion today in dollar terms (7.1% of the 2016 GDP of $18 trillion). Europe's underground economy is much larger in magnitude. Overall GDP is similar to that of the United States, but the share of Europe's shadow economy is more than double; a rough estimate for the absolute size of the Eurozone underground economy would be $3 trillion. Obviously, including illegal activities (e.g., the drug trade) would increase these measures considerably.

The measures of the size of the underground economy in figure 5.1 are broadly consistent with those in other recent studies, including by Rafael La Porta and Andrei Shleifer.[17] They look at a variety of indicators, finding, for example, that for the upper quartile of countries by income, electricity consumption in the informal (underground) economy averages 17.6% of total electricity consumption. La Porta and Shleifer also look at such measures as self-employment, because the self-employed are more likely to underreport income.

The likely size of noncompliance rates in continental Europe is underscored by the extreme measures some countries have taken to close the tax-reporting gap. Many European countries have implemented caps on the size of retail cash transactions, as table 5.1 illustrates.

Some countries have fiercely resisted this trend, most notably cash-loving Germany. So far, the German Finance Ministry has met fierce resistance to a 2016 proposal to cap cash payments at 5,000 euros. (Curiously, the opposition's rallying cry seems to be "Money is coined liberty," from Dostoyevsky's *The House of the Dead*.[18] Never mind that the quote is usually presented a bit out of context: Dostoyevsky is describing his life in prison and goes on to add that usually money was quickly spent on vodka before it was seized in a night search. Indeed, money is a surrogate for all the liberties the prisoners have been robbed of and is itself forbidden. To draw an analogy between life in a Tsarist prison and life in the modern liberal state as a defense of large-denomination notes borders on the absurd.)

Table 5.1: Restrictions on the use of cash in the Eurozone

Country	*Maximum cash payment*	*Date enacted*
Belgium	3,000 euros	January 1, 2014
Denmark	10,000 kronor (≈1,340 euros)	July 1, 2012
France	1,000 euros (residents) 15,000 euros (nonresidents)	September 1, 2015
Greece	1,500 euros	January 1, 2011
Italy	<1,000 euros	December 6, 2012
Spain	2,500 euros (residents), 15,000 euros (nonresidents)	November 2012

Source: Beretta (2014); Reuters (http://www.reuters.com/article/us-france-security-financing-idUSKBN0ME14720150318%20Reuters%20March%2018).

Bans on large cash purchases are by no means the most dramatic measure Europe has tried to deal with rampant VAT evasion. An even more extreme measure is to enlist the help of consumers. Starting in April 2014, Portugal followed Greece in offering lottery prizes, which consumers could become eligible for by sending in sales tax receipts.[19] The Portuguese government also offered income tax discounts to consumers who sent in large numbers of sales tax receipts. Within a year, the government had awarded 40 new Audi cars, but tax receipts from the VAT had risen more than 4% during a period when private consumption had risen only 2%. The potential effectiveness of consumer reward programs for verifying retail receipts is underscored by the work of London School of Economics professor Joana Naritomi.[20] Naritomi studied a receipt-reporting reward program in São Paolo, Brazil. Naritomi was able to exploit a unique data set with monthly tax returns from more than a million retail establishments and participation by more than 40 million consumers. She estimated that reported retail revenue rose by 22% over 4 years due to the consumer-reporting and whistle-blowing program.

In sum, even though the evidence for Europe is less reliable than for the United States, the strong presumption is that tax evasion is likely an even larger issue for the former.

Tax Evasion in Canada

Recent estimates of tax evasion for Canada suggest a broadly similar order of magnitude for tax evasion as in the United States. For example, one recent study compares data on consumption by individual households with reported income, the classic approach to detecting tax evasion used by law enforcement authorities, albeit on a very small scale. The study finds that underreported income is between 14% and 19% of GDP in Canada.[21] Interestingly, underreporting of income appears to be a widespread phenomenon that reaches far beyond just the self-employed. Between 30% and 40% of families with salaried income appear to be underreporting some other component of income. This is a potentially important observation, which presumably applies to many other countries as well. It is important not only for fair distribution of the tax burden but also because political support for redistribution policies (e.g., a negative income tax) would presumably be stronger if there were greater confidence in truthful reporting of incomes. If some low-income families underreport income while others report truthfully, this could lead to inequitable distribution of support payments and other resources. This is yet another argument for reducing the role of cash in the economy.

In sum, the size of underground economies is vast, creating huge tax gaps of about $500 billion annually in the United States, even if one counts only federal tax. In Europe, given an underground economy perhaps twice the size of that in the United States and higher tax rates, the tax gap is likely far larger, more on the order of $1 trillion or higher.

To get a better sense of orders of magnitude, it is interesting to compare these overall tax evasion figures to estimates of tax evasion stemming from wealth hidden in tax havens like Luxembourg, the Virgin Islands, Bahamas, Cypress, Panama, and, of course, Switzerland. In his 2015 book, *The Hidden Wealth of Nations*, University of California professor Gabriel Zucman has estimated that total foreign financial wealth held in tax havens (including stocks, bonds, and bank accounts) amounts to about $7.6 trillion, or 8% of the world's financial wealth of $95 trillion. Zucman estimates that the combined annual tax losses to the world's governments due to tax havens are at least $200 billion per year, consisting of tax evasion on offshore income (dividends, interest payments, etc.) of about $125 billion, with the rest mainly being avoidance of wealth and inheritance taxes. Of the total $200 billion, the tax revenue loss to Europe is $78 billion and to the United States is $35 billion. These are large figures, but in comparison to overall tax evasion in the United States and Europe, they are only a modest fraction of the total. In any event, even in the case of offshore tax havens, a considerable quantity of wealth still goes in and out in the form of paper currency packed in bags.

OUTRIGHT CRIMINAL ACTIVITIES

We next turn to the use of cash in outright criminal activities, both domestic and foreign. Criminal financing involves many modalities besides cash. As someone who has studied the history of under-invoicing and over-invoicing in international trade, I am keenly aware that there are many vehicles for moving money around, for example, by misreporting amounts on otherwise legal transactions. In the years after World War II, when all of Europe was locked down by intense capital controls, people would routinely get money out of the continent by, for example, striking deals that underreported the payments received for exports and overreported payments made for imports, with capital flight through this channel amounting to roughly 10% of reported trade for many countries and significantly more for a few of them.[22] Even today, money moves in and out of countries like China and India through misreporting of trade.

Indeed, there are plenty of clever ways an illegal transaction can be structured to cover up the true flow of funds, without involving cash, particularly for a one-off transaction. In the United States, for example, it is illegal to pay for organ donations, and therefore it certainly is not possible to pay with a credit card. However, the restriction can be circumvented by using a credit card to grossly overpay a close blood relative for, say, a dress, and then have the relative “donate” the kidney.[23] But there is little question that cash is still king, offering anonymity and real-time clearing of transactions at every level of a criminal operation. The typical low-rent hitman[24] is not looking to get paid in uncut diamonds or by credit card, though a few might naively take bitcoins, thinking the cryptocurrency can never be traced, as discussed in chapter 14.

It would be difficult to list all the areas where cash has pernicious effects without turning this book into an encyclopedia of criminal activity. Discussion of a few major areas is, one hopes, enough to make the point emphatically. I will consider in turn money laundering of criminal earnings, as well as cash in facilitating the drug trade, political corruption, human trafficking, and exploitation of migrant workers.[25]

The business of laundering dirty money by passing it through legal businesses as fake profits is as old as the hills. It is central to organized crime operations all over the world.[26] Earnings from illegal activities often take the form of cash, and finding ways to make the illicit cash earnings seem legitimate is a key component of any large-scale criminal enterprise. The standard device involves taking legitimate cash-intensive businesses (e.g., restaurants, dry cleaners, and construction firms), injecting them with cash, and then cooking the books to make it appear that the money was earned legitimately. I realize that many readers are already well aware of how money laundering works (certainly addicts of the acclaimed television series *Breaking Bad*),[27] but for completeness, a short discussion is essential.

The basics of using double bookkeeping to launder ill-gotten gains are simple. For example, a restaurant can launder cash by claiming that it serves more diners than it actually does. The restaurant simply makes up fake receipts, and reports this "income" on an extra set of books that it keeps for tax authorities. The authorities are not entirely stupid, and if they are suspicious, they might check whether the restaurant seems to be ordering enough ingredients to serve as many diners as it is claiming. The seasoned money launderer (please forgive the pun) prepares for this eventuality by creating fake receipts for those "purchases" also. If this is not feasible, the restaurant will buy extra ingredients and either dispose of them or sell them off at a discount to another restaurant (for payment in cash, naturally). If a criminal enterprise owns the restaurant, then the whole business is in-house. Otherwise, there might be a payment or coercion.[28]

Of course, I have not begun to do justice to the ingenuity of money launderers or the different devices they may use. For example, the informal Hawala transfer system, widely prevalent in the Middle East and North Africa, effectively matches someone who has (say) rupees in India and needs dollars in the United States, with someone in the opposite situation, so money never moves across borders.[29] And this practice is hardly restricted to informal third-world bankers; there are prominent cases of advanced-country bankers being caught up in such matching schemes.[30] I am hardly claiming that all money laundering involves cash, but cash does play an important role in many operations.[31]

The drug trade is a famously cash-intensive business at every level. When Mexican drug lord "El Chapo" Guzmán was arrested at one of his houses in Mexico in February 2014, authorities found more than $200 million in cash on the premises. Major drug busts invariably unveil massive stashes of cash. Although there do not seem to be any aggregate statistics on cash seizures for the United States, I invite the reader to try online searching on the words "bust," "cash," "drugs," or the like, to get an idea of the extent of the activity. Admittedly, the oft-quoted fact that some 90% of all US currency has traces of cocaine overstates the connection between drugs and cash. The contamination occurs in modern high-speed counting machines, including ATMs, where one bill can pollute a batch.[32]

The RAND Corporation has estimated the combined size of the market for four major illegal drugs in the United States to be more than $100 billion in 2010, with cocaine (including crack) $28 billion, heroin $27 billion, marijuana $41 billion, and methamphetamine (meth) $13 billion. This is only the footprint in the United States.[33] The last attempt to do a comprehensive measure of the global drug market, by the United Nations Office on Drugs and Crime for the year 2003, came up with an estimate of $322 billion. As world nominal GDP has roughly doubled since then, the drug trade has presumably expanded proportionately to more than $600 billion.[34]

Beyond their impact on the major consumer countries, drug cartels wreak havoc in countries like Mexico and Colombia, challenging and undermining their governments. Eliminating cash would hardly eliminate drug cartels. Nevertheless, it would be a significant blow to their business model at many levels. Given the violence and crime that the drug business spins off, the potential benefits to even a small reduction in drug trade crime arguably can have an extremely beneficial effect. Obviously there are other ways of reducing drug-related crime. A simple one would be to legalize marijuana, as Canada recently has been contemplating. In any event, hard drugs would still remain highly problematic.

Corruption

Another area where society incurs massive social costs is the use of cash to corrupt and bribe public officials. The social costs of corruption presumably are orders of magnitude greater than the scale of the bribes themselves, but even estimates of the payments are staggering. The World Bank attempted to create a comprehensive worldwide measure of bribes at the beginning of the 2000s, when it conducted an international survey of enterprises, asking firms how much they had to pay in bribes annually to get licenses, to help deal with regulations, and to obtain favorable decisions on public procurement. The Bank also drew on surveys of households that asked how much they typically had to pay in bribes to procure public services. The World Bank came up with a round number for bribes globally of \$1 trillion for the years 2001 and 2002. Assuming the figure has roughly doubled in line with global GDP—which seems very conservative, given that developing countries have accounted for the lion's share of global growth over the past 15 years—the worldwide scale of bribes would now be closer to \$2 trillion.[35]

Few dispute that corruption is one of the biggest obstacles to development. A classic paper by economist Paolo Mauro found substantial evidence that corruption has a significant negative impact on economic growth. The same theme arises in the work of many economic historians, including the seminal work of David Landes and later work by Daron Acemoglu and James Robinson.[36]

One doesn't have to go to developing countries to find spectacular cases of bribery. Louisiana Congressman William Jefferson was sentenced in 2010 for taking tens of thousands of dollars in bribes, including \$90,000 that the FBI found wrapped in foil buried inside pie crusts in his refrigerator. The mayor of Charlotte, North Carolina, resigned in 2012 when he was accused by the FBI of taking \$48,000 in a sting operation. Perhaps the granddaddy of all sting operations is ABSCAM, the code name for a covert FBI operation that ensnared one senator and six members of the House of Representatives in the late 1970s. In this case, the payoffs were to assist in obtaining casino licenses and granting a phony sheik US residency. The incident is famously memorialized in director David O. Russell's widely acclaimed film *American Hustle*.

And sometimes the cash flows the other way. Former US Speaker of the House J. Dennis Hastert was accused of lying to the FBI and structuring cash withdrawals as a way to hide $3.5 million in payoffs to cover up past misconduct.[37]

Canada, where the construction industry is notoriously corrupt, formed its Commission of Inquiry on the Awarding and Management of Public Contracts in the Construction Industry in 2011. A former organizer for the Union Montreal, the governing party in the city of Montreal from 2001 to 2012, testified to the commission that the party's chief fundraiser had a safe in his office so stuffed with cash—including old 1,000–Canadian dollar bills—that he needed help closing it.[38] Even ultra-honest Finland found itself transfixed by the case of a senior police officer involved in the narcotics trade, with cash found buried in his backyard and hidden inside his house.[39]

Although corruption persists in advanced economies, the scale of the problem is far worse in developing countries. The politically popular anticorruption campaign, launched by Chinese President Xi Jinping after he came to power in November 2012, showed how pervasive the problem had become in the world's largest economy. Cash is hardly the only way bribes are done in the emerging world; before the anticorruption campaign, Chinese tourists abroad were voracious consumers of luxury goods, especially items like leather belts and purses that could be used as gifts to bribe officials back home. But cash likely pays an even bigger role. In November 2014, Chinese anticorruption officials arrested General Xu Caihou, who was accused of accepting bribes for promotion within military ranks. The government needed 12 trucks to haul off all the cash at his residence, apparently all in renminbi, equal in value to several million dollars.[40]

China may have a corruption problem, but it is not nearly as paralyzing as in some other emerging markets. Transparency International estimates that former Nigerian president Sani Abacha embezzled from $2 billion to $5 billion, though this was less than Suharto did in Indonesia (between $15 billion and $35 billion) or Ferdinand Marcos in the Philippines (between $5 billion and $10 billion, not counting wife Imelda's legendary shoe collection). And even these figures pale next to unofficial estimates of Russian President Vladimir Putin's wealth, which range from $70 billion to $200 billion.[41]

True, the United States' 2010 Kleptocracy Asset Recovery Initiative makes a small dent in the corruption problem.[42] But as the April 2016 leak of the detailed records of the Panamanian law firm Mossack Fonseca recently demonstrated, far greater efforts are needed. The "Panama Papers" revealed the hidden offshore accounts of 140 public servants and politicians, including 12 current and former presidents, prime ministers, and monarchs, as well as friends and relatives of politicians.[43]

A culture of corruption can be extremely difficult to change, even when a country's leaders are determined to do so. Mexican drug lord El Chapo Guzmán has been able to use bribes to pave the way for his escape twice now from maximum security prisons in Mexico, the second time reportedly by offering a $50 million bounty, presumably paid in cash stored in one of Guzmán's many hideaways. As of this writing—and it is hard to stay current on Guzmán's arrests and escapes—he is back in custody and apparently on his way to a US prison, where escape is more difficult, though it still happens.

Obviously, corruption predates paper currency and will live long after it is gone. Nevertheless, there is little question that the ability to make anonymous, real-time, untraceable payments in cash facilitates it. Yes, especially as large notes are phased out, those engaged in corruption and other criminal activities will find other ways to do business, and there will be an even greater incentive for innovation. But other ways of making payments (gold, uncut diamonds, bitcoins) each have their problems, ranging from illiquidity and high transactions costs (uncut diamonds) to risks of ultimate tracing (bitcoins). As this book stresses repeatedly (because the point is so essential), of course criminals can use transaction technologies that circulate completely outside the legal economy. However, as long as the government blocks the doors into the legal economy, it can seriously undermine the liquidity of black market transaction media and dramatically increase the cost of using them compared to cash.

To end our discussion of corruption on a brighter note, the early efforts of the Modi government in India are interesting as an attempt to use the Internet to bypass corrupt officials. India is famous for its “license Raj,” the euphemism for its deliberately heavy-handed regulatory system, designed to give officials enormous scope to ask for bribes. The license Raj has long been a huge yoke on India’s progress in economic development. After Narendra Modi was elected prime minister in May 2014, one of the first plans he rolled out was to allow Indians to apply for a variety of licenses online, making the payments electronically and therefore eliminating the usual cash bribes at the city hall license bureau. The idea of prohibiting cash payments as a way to contain corruption has also been used in Hong Kong, where, for example, you will probably be out of luck if you even try to pay your monthly gym membership fee in cash. As we discuss in chapter 13 on international issues, phasing out cash is not a practical option in the foreseeable future in most developing economies, which simply don’t have the payment infrastructure to sustain a mostly electronic payment system. Nevertheless, for some developing countries, simply taking advanced-country currency out of the equation would be highly beneficial.

Human Trafficking, Human Smuggling, and Exploitation of Migrants

Human trafficking is another major international crime area where cash plays a dubious role. The United States Department of State describes the intensive global effort aimed at discouraging human trafficking both in the United States and internationally. Though no one really challenges that this problem is pervasive, efforts to quantify it and to create a worldwide measure are fraught with methodological, statistical, and conceptual problems. These problems partly stem from differing definitions and institutional capacities across different countries.[44]

The International Labour Organization has nevertheless offered some widely quoted statistics that are perhaps suggestive of the scale and scope of the problem, even if they have to be regarded as exceedingly imprecise.[45] According to the International Labor

Organization, roughly 21 million people are victims of forced labor, of which 11.4 million are women and girls. Of these victims, 19 million are exploited by private individuals or enterprises, the rest by state or rebel groups; 4.5 million are victims of forced sexual exploitation.

Broad evidence from national law enforcement agencies indicates significant trafficking of sex victims into Western Europe, particularly from Eastern Europe and the former Soviet Union, often using false advertisements of work. The government of France, for example, estimates that the majority of the 20,000 people in France's commercial sex trade, 90% of whom are foreigners, are likely victims of human trafficking, with trafficking networks expanding outside Paris to also include Lille and Nice.[46] This is hardly just a European problem; it is also a rampant problem in the Middle East, for example. Even in the United States, the press periodically has exposés of how young girls are lured from places like the Midwest into lives of prostitution in New York and elsewhere on the East Coast. Efforts to stop forced prostitution run up against the problem that it is extremely profitable: the International Labor Organization estimates that worldwide, the annual profit per victim of sexual exploitation is $21,800, though the figure is much higher in advanced countries, perhaps on the order of $100,000.[47]

Illegal Immigration and Border Control

Exploitation of migrant workers is another major area that feeds on cash all along the chain, from cross-border smuggling of workers (human smuggling), to businesses that pay migrants off the books, a common enough practice in both agriculture and construction around the world. (A classic film reference is Jerzy Skolimowski's 1982 film *Moonlighting*, starring Jeremy Irons, which sympathetically portrays the harsh life of a Polish carpenter working illegally and off the books in the United Kingdom.)

Estimates of the total number of migrant workers are on the order of 230 million worldwide.[48] According to the United Nations Office on Drugs and Crime, the International Labour Organization, and the United States Department of State, migrant workers are extremely vulnerable to exploitation. Of course, back in the 1960s and 1970s, Mexican-American activist César Chávez famously devoted his life to improving the treatment of itinerant farm workers, had important successes in California and Florida, and influenced legislation throughout the United States. Nevertheless, with the huge continuing influx of illegal workers in the United States and other advanced economies, exploitation of migrant workers remains a pressing issue.

Illegal immigration is a cash-intensive process, and the existence of cash makes it far harder for countries to control their borders. First, migrants typically pay smugglers in cash to bring them across the border: $1,000–$3,500 per individual to cross from Mexico to the United States, and $3,000–$10,000 to go from Central Asia to Western Europe, according to a 2011 Financial Action Task Force Report.[49] Second and far more important, businesses that choose to rely on illegal immigrant workers can pay them in cash to reduce the risk of detection. It is this final demand from employers that ultimately fuels a large part of illegal immigration.[50]

The extent of illegal immigration varies tremendously across countries; for one thing, it is much more difficult for immigrants to blend into some countries than into others. In a melting pot like the United States, unauthorized immigrants (residents without legal status) constitute more than 11 million people, or 3.5% of the population.[51] The range of estimates for Europe are lower, between 0.25% and 0.60% of the total population in France and Germany, 0.02% and 0.09% for Denmark, and 1.5% and 1.9% in Greece.[52] Nevertheless, the issue is almost as contentious across Europe as it is in the United States.

Whatever one's position on legal immigration, few would argue with the proposition that under normal circumstances, countries have a sovereign right to control their borders and to determine their immigration policy. The issue is becoming increasingly prominent across advanced economies. Some US politicians are proposing extreme measures, such as building a giant razor wire fence across the US-Mexican border, much as Hungary has done and other European countries are considering. Yet there seems to be precious little awareness of how much more difficult and risky it would be for employers to routinely hire illegal workers if they could not pay in cash, and how phasing out paper currency might prove a far more effective remedy than the alternatives being considered. Yes, again, anonymous payments can be made in ways other than cash, from prepaid cards to Amazon credits to virtual currencies. These all carry their risks and costs, however, and government policy can be directed toward magnifying these risks and costs. Controlling borders is likely to become an ever-increasing problem in the future, and improved control has to be listed as a major potential benefit of phasing out cash or restricting its use. That said, any plan to fully phase out cash will need to address the problem of providing amnesty to the existing illegal immigrants. Allowing time to deal with illegal immigration is one of many reasons the proposal in chapter 7 leaves smaller notes in circulation for an indefinite period.

To be clear, I strongly favor allowing increased legal migration into advanced economies. Any economist who takes income and wealth inequality seriously realizes that, despite the enormous progress of the past three decades, differences across countries simply swamp the within-country inequality that Thomas Piketty and others worry about. The 2015 Nobel Prize winner Angus Deaton, author of the 2013 book *The Great Escape*, has forcefully made this point. International migration from poor countries to advanced ones creates massive welfare gains for the immigrants. The issue is likely to become an even more important humanitarian concern if, as likely seems the case, climate change makes some parts of the world that are now densely populated uninhabitable. One can hope that enabling countries to better control their borders might lead to a more rational debate on immigration policy, though I admit that might be optimistic.

Terrorism

Terrorism has been perhaps the single biggest driver of global anti-money-laundering initiatives and restrictions on anonymous transactions, including cash. The terrorist attacks of September 11, 2001, in New York, Virginia, and Pennsylvania led to a dramatic

US effort to tighten enforcement of global money-laundering regulations, especially on bank reporting of large cash deposits and withdrawals. Responding to the November 2015 terrorist attacks in Paris, the European Commission is now proposing stricter rules on cryptocurrencies and prepaid cards.[53] As this book goes to press, the European Central Bank (ECB) has finally decided to stop printing new 500-euro notes, with one important reason being to reduce its use in terrorist financing.[54] The urgency of combating terrorism has, more than anything, tilted the balance toward compromising privacy to strengthen security, particularly in the United States.

The scale of cash used in terrorist financing is likely nowhere near the same magnitude as that for other crimes and tax evasion. Even ISIS (Islamic State of Iraq and Syria), which by all accounts is by far the best-funded terrorist organization/state in recent history, has expenditures of perhaps $1–2 billion per year, modest compared to a major drug cartel. Certainly, ISIS has made extensive use of cash, not least by looting the vaults of cash in territories it has occupied.[55] The antiterrorism aspect of restricting cash as well as other means of anonymous and pseudonymous payments is certainly an important one, and perhaps it will ultimately prove the catalyst for faster action. However, in the scale of global cash holdings, terrorism is a relatively minor factor.

Counterfeiting

Some mention must be made of counterfeiting. When the US Secret Service was founded in 1865, its main job was to fight counterfeiting. At the time, between one-third to one-half of the US money supply was counterfeit. By 2001, according to the US Treasury, less than 0.01% of all US currency was counterfeit;[56] a 2012 Federal Reserve study supports this claim.[57] That said, the vigilance one observes at many retail establishments in dealing with large-denomination notes, even in the United States, suggests that some wariness is reasonable. Although the counterfeit rate is no doubt low, it is hard to imagine any government admitting there is a big problem with its currency until it had a convincing plan for solving it.

We have already mentioned how the US Treasury has introduced several rounds of modified $100 bills to reduce the threat of counterfeiting, most recently the multicolor bill issued in October 2013 that contains a plethora of security features. The new notes are possibly intended as a counter to such threats as the legendary North Korean counterfeit $100 "supernote." When discovered in 2004 in a seizure at the Port of Newark, federal agents found that these supernotes contained the same composition of fibers as genuine notes, featured the same high-tech color-shifting ink, and were otherwise nearly flawless.[58]

But as the new genuine $100 notes become increasingly sophisticated, how long will it take the public to be able to appreciate their subtleties sufficiently to be able to discriminate genuine from counterfeits bills? Will they need to eventually scan the bills and run them through a sophisticated program, basically eliminating one of the few remaining advantages of cash?

The counterfeiting issue is quite serious in some countries. For example, in recent years, the problems in China have become such that even ATMs were being polluted by counterfeit bills. The risk of counterfeit currency became such that many retail stores felt it necessary to run bills through verification scanning machines before accepting them. To address the problem, the Chinese government began introducing new, more counterfeit-resistant bills at the end of 2015. The face of Mao still adorns the new 100-yuan notes, but they now contain features like ink that changes color when viewed at different angles. Counterfeiting has not proven insurmountable for most countries, but it does require constant innovation to stay ahead of it.

PUBLIC HEALTH

In addition to facilitating criminal activities, used paper currency can be a vehicle for spreading disease.[59] Researchers at New York University analyzed $1 bills and found evidence of thousands of microbes, including a wide range of bacteria, even some antibiotic-resistant ones.[60] Though most people are aware of the hygiene problems associated with handling cash, one can imagine paper currency being an agent of transmission in some future pandemic. In some tropical countries, such transmission is already a serious threat to public health.[61]

Then again, one might argue that shared touch screens at retail checkout counters, ATMs, and the like have problems of their own, and some new technologies could turn out to have bigger health concerns than cash causes. All in all, the public health issue concerns do not seem to be a first-order argument against cash at present.

In this chapter and the preceding one, we have seen just how huge the costs of cash are in terms of tax evasion and crime. Next we turn to examining just how much central banks and treasuries receive directly from the business of printing paper currency.