CHAPTER 2

Europe's Shadow Economies: Estimating Size and Outlining Policy Options

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INTRODUCTION

Informality has declined across Europe but remains significant, especially in emerging market economies. As a share of formal GDP, shadow economies have been broadly stable, although on a slightly declining trend over the past 20 years, with the exception of the global financial crisis. On average, shadow economies are around 15 to 25 percent of GDP in the European Union. For advanced European economies, the shadow economy averages 15 to 20 percent, whereas it is more prevalent in emerging market economies, amounting to around 30 to 40 percent of GDP and a much larger share still in some Commonwealth of Independent States (CIS) countries (Schneider 2015; Hassan and Schneider 2016; Medina and Schneider 2018; Kelmanson and others 2019).

Although shadow activities can act as a source of supplemental or otherwise unavailable income, they exist partly because of inefficiencies and other factors in the broader economy. Such activities have significant economic and social implications across several dimensions. Shadow economy activity often goes untaxed and therefore weakens public revenues, resulting in suboptimal provision of public goods. Larger shadow economies tend to be associated with high and persistent unemployment rates and low labor force participation (Schneider 2013). Having a large number of workers in the shadow economy makes it more difficult for a country to target effective labor policies. Operating informally tends to limit firms' growth below the efficient scale of production, impeding productivity and innovation. The costs of the shadow economy also include lowering provision of and access to financing, reducing human and physical capital accumulation, and undermining growth prospects. Large shadow economies can distort economic indicators, possibly leading to misdiagnoses and flawed policy choices. Although

This chapter provides an overview of results and policy recommendations from Kelmanson and others (2019) and presents updated estimates of the shadow economies in Europe, with the sample period extended to 2019.

it is too early to assess the effect of the coronavirus disease 2019 (COVID-19) on the shadow economy in Europe, governments should consider its size and nature when designing policy responses.

The size of the shadow economy tends to be smaller in more developed countries, both as the share of GDP and as a share of employment. The share of shadow economic activity is strongly negatively associated with income per capita across different country samples and time periods. In more advanced economies, the shadow economy is dominated by tax evasion and undeclared labor in registered firms (Schneider and Buehn 2012). In contrast, developing economies tend to have a relatively higher share of informal workers (Oviedo 2009).

ESTIMATES OF THE SHADOW ECONOMY IN EUROPE

The hidden nature of informal activity makes it—by definition—challenging to measure accurately. Alternative concepts of the shadow economy encompass a wide range of phenomena. Some definitions focus on hidden output (Gerxhani 2004), and others on hidden employment (Hussmanns 2004; Perry 2007). Although unregistered firms hide all their output, registered firms may choose to hide a fraction of their output to reduce tax liability. We follow the definition of the shadow economy used by Schneider and others (Schneider and Williams 2013; Schneider 2014; Hassan and Schneider 2016) as being mostly legal and productive economic activities deliberately hidden from official authorities that, if recorded, would contribute to GDP (excluding illegal or criminal activities and do-it-yourself, charitable, or household activities). We use "informality" interchangeably with "shadow economy."

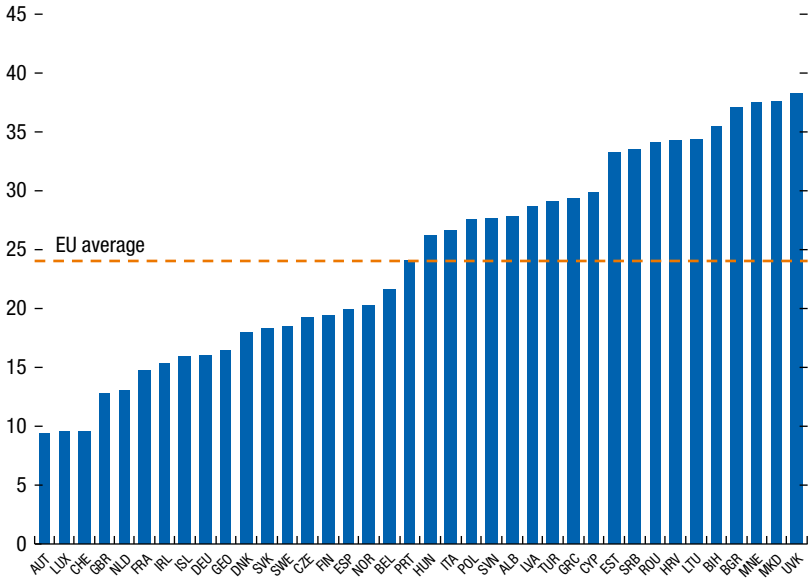
We update the estimates of the size of shadow economies from Kelmanson and others (2019) for 47 European countries, extending the period from 2016 to 2019, using the multiple indicators, multiple causes (MIMIC) model. In MIMIC the size of the shadow economy is represented by a latent variable (an index), with its causes and indicators observed and measured. This latent variable is used in a system of two equations: (1) as the dependent variable with its causes as the explanatory variables and (2) as the explanatory variable for the indicators of informality. The equations are simultaneously estimated, and the fitted values of the latent variable are used to estimate the size of the shadow economy as a share of GDP.[1] Causal variables are productivity (GDP per worker), tax revenues, trade volume, and agriculture value added, and indicator variables are GDP growth, labor force participation rate, and investment.[2]

The share of the shadow economy remains significant in many European countries, ranging from less than 10 percent to about 40 percent of GDP (Figure 2.1).

[1] Kelmanson and others (2019) discuss other estimation methods, as well as strengths and weaknesses of the MIMIC approach.

[2] Kelmanson and others (2019) also use *government effectiveness* as an alternative input variable.

Figure 2.1. The Size of the Shadow Economy in European Countries, 2019
(Percent of GDP)



Source: IMF staff calculations.
Note: Data labels use International Organization for Standardization country codes.

The average size of the shadow economy in the European Union[3] is 23 percent and in the euro area is close to 22 percent. Emerging economies tend to have larger shadow economies, around 33 percent on average. In many CIS countries, the shadow economy is around 35 to 40 percent of GDP and even higher in some cases.

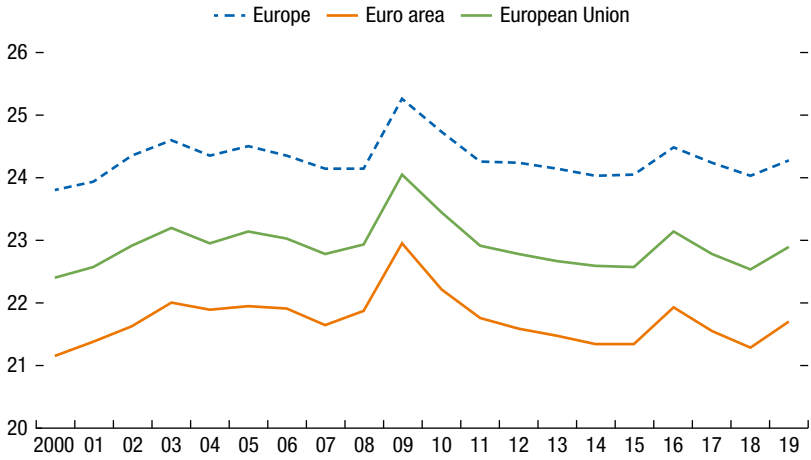
Although the average size of the shadow economy in Europe remained broadly stable until the global financial crisis, the dynamics were heterogeneous across countries. The shadow economy has grown since the early 2000s in some Balkan and CIS countries and declined in others, such as Germany, the former Yugoslav Republic of Macedonia, and the Slovak Republic.

Shadow economies tended to peak around 2008 to 2010 at the time of the global financial crisis and then decline to around precrisis levels. Most countries experienced an uptick in shadow activity of around 1 to 2 percent of GDP (Figure 2.2).

The shadow economy appears to be weakly countercyclical in most countries. For example, for the euro area, the correlations between shadow economy and

[3] The United Kingdom is included in the analysis because it was a part of the European Union in 2019.

Figure 2.2. The Size of the Shadow Economy in Europe, the Euro Area, and the European Union, 2000–19
(Percent of GDP)



Source: IMF staff calculations.

output gap estimates are negative (Figure 2.3); however, a few countries (Czech Republic, Greece, Slovenia, Spain) show a positive correlation.[4]

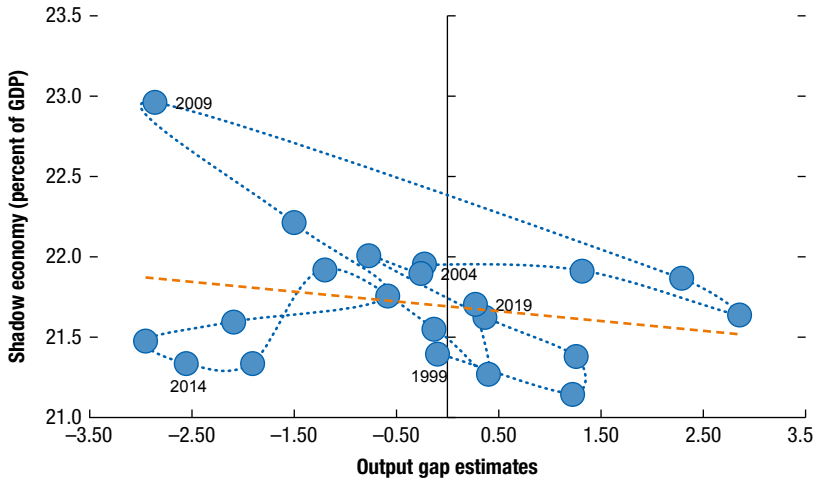
Estimates of the shadow economy here are broadly in line with the literature. The estimates are close to Hassan and Schneider (2016)[5] but less volatile, reflecting a greater contribution from institutional factors and economic structure (for example, trade openness and share of agriculture), which tend to change slowly over time. Schneider (2015) has lower averages for EU and euro area countries (17.8 percent and 15.8 percent for 2015, respectively), although the sample is missing the Slovak Republic. The estimates of Medina and Schneider (2018) for 2017 EU and euro area averages are 16.0 percent and 15.5 percent, respectively. For 2015 estimates are 16.7 percent and 14.7 percent, respectively.

The estimates for the CIS group appear to be more sensitive to estimation specifications, with the divergence especially pronounced in the early 2000s; however, the recent dynamics are broadly similar. Medina and Schneider (2018) estimate the shadow economy in CIS countries to be 39.2 percent on average in 2017 (40.6 percent in 2016). The difference in the estimates for the CIS economy could be affected by data limitations as well as changes in data-collection methodology and data-processing techniques from the late 1990s to the early

[4] Output gap estimates are from the IMF's World Economic Outlook database, October 2019.

[5] We used estimates for 2000 from Hassan and Schneider (2016) as initial values in our analysis. Their paper has the most comprehensive coverage of the European countries. Schneider (2015) covers only EU economies, and Medina and Schneider (2018) are missing several emerging European countries in their sample.

Figure 2.3. Shadow Economy and Output Gap Estimates of the Euro Area, 1999–2019
(Percent of GDP)



Source: IMF staff calculations.

2000s.[6] Also, while the absolute values of the MIMIC estimations can be sensitive to the sample and variables used, the relative ranking is more robust (Table 2.1).

There is also a trade-off between sample homogeneity and sample size. Focusing on European economies allows us to capture more relevant factors in

TABLE 2.1.

Various MIMIC Estimations of the Size of the Shadow Economy in Europe, 2013, 2016, and 2019
(Percent of GDP)

	2013			2016		2019
	Updated Results	Kelmanson and Others 2019	Hassan and Schneider 2016	Updated Results	Kelmanson and Others 2019	Updated Results
Sample average	28.1	28.5	30.1	28.4	28.5	28.1
Europe (excluding CIS)	24.1	24.8	25.2	24.5	24.8	24.3
Advanced economies	20.0	20.7	20.5	20.4	20.7	20.2
Emerging market economies	33.6	34.1	33.9	33.7	34.0	33.6
European Union	22.7	23.4	23.2	23.1	23.5	22.9
Euro area	21.3	22.2	22.6	21.9	22.3	21.7
CIS	41.3	40.9	51.6	41.3	40.8	40.8

Sources: Hassan and Schneider 2016; Kelmanson and others 2019; and IMF staff estimates.
Note: CIS = Commonwealth of Independent States; MIMIC = multiple indicators, multiple causes.

[6] For those reasons, we chose not to report the estimates for the CIS countries in Annex 2.1.

our estimations; however, such focus comes at the expense of the country sample: fewer than 50 countries compared with more than 150 countries in the papers by Schneider and his coauthors. Possibly for this reason, for some countries (especially several advanced economies) the updated estimates appear to be higher than in previous literature, and for some emerging market economies, lower.

DETERMINANTS OF THE SHADOW ECONOMY

A broad literature has explored the determinants of the shadow economy, covering institutional and macroeconomic factors. Kelmanson and others (2019) identified determinants of the shadow economy more relevant for European countries.

We find the following to be important macroeconomic explanatory factors for the evolution of the shadow economy in Europe, including productivity (GDP per worker), government effectiveness, tax revenues, trade volume as a percentage of GDP, and agriculture value added as a percentage of GDP. Institutional factors are also important, notably weak institutional quality (such as excessive regulatory burden), inefficiency of government institutions, weak rule of law, and widespread corruption.

- Regulatory quality is negatively associated with the size of shadow economies. Regulatory burden suppresses entrepreneurial freedom, imposes higher entry costs, and results in more bureaucracy (Dabla-Norris, Gradstein, and Inchauste 2008).
- Weak governance, including corruption and weak judicial systems, are important determinants of the size of the shadow economy, especially in interaction with regulation and other variables. The effect of regulation and financial constraints on informality is stronger with better rule of law (Dabla-Norris, Gradstein, and Inchauste 2008) and when governance levels exceed certain thresholds (for more details, see Oviedo 2009).
- Tax burden and tax administration are also factors that explain the size of the shadow economy. The higher the overall tax burden and the less systematic the monitoring and enforcement, the stronger the incentive for tax evasion and underreporting of wages (Schneider and Williams 2013; Hassan and Schneider 2016). We also find government effectiveness to be negatively associated with the size of the shadow economy.

Similar to prior literature, we find the following macroeconomic factors to have an effect:

- Trade openness is negatively associated with the size of the shadow economy (Torgler and Schneider 2007). Trade is relatively transparent and easier to tax and, therefore, more difficult to conceal for tax and other purposes.
- Countries with higher productivity (GDP per worker) typically have a better allocation of resources within the economy and thus smaller informal sectors (Porta and Shleifer 2008). Productivity could also act as a proxy for a country's development, which is generally correlated with taxation capacity

and demand for public goods and services. As with national income, the relationship between productivity and the size of the shadow economy is endogenous, with causation going both ways. As expected, we find a negative relationship between productivity and the size of the shadow economy.

- Informal work is prevalent in agriculture and related sectors (along with lower enforcement). Contrary to some literature findings (Vuletin 2008; Schneider 2014), we find agriculture value added per GDP to be negatively related to the shadow economy in Europe.[7]
- Shadow economies are associated with lower human capital, with informal workers having fewer skills and less education (Porta and Shleifer 2008; Dabla-Norris, Gradstein, and Inchauste 2008). Human capital accumulation and entrepreneurial talent are held back by lower levels of innovation and productivity in countries with larger shadow economies. Similar to the literature, we find a negative relationship between human capital and the size of the shadow economy.
- Migration and remittances play a dual role with respect to the shadow economy. Migrant workers, like informal workers, tend to reside in rural areas, to have less education, and to be employed more in labor-intensive (less-productive) activities compared with workers in the formal sector. Shadow economic activity and migration also play a similar poverty-reducing role, providing a safety net for the poor. As a result, migration and remittances can be viewed as substitute activities and are therefore negatively related. On the other hand, remittances can encourage informality by providing the capital, or a safety net, to encourage remittance recipients to choose less-secure informal work (Ivlevs 2016). For example, in Moldova some women and young people in families with household members working abroad choose informal employment rather than a formal job (Ganta 2012). In this case, remittances positively contribute to the size of the shadow economy. The ultimate sign of the relationship between the two phenomena depends on which of these two effects is stronger. We find a negative relationship between remittances (share of GDP) and the size of the shadow economy. This suggests that migration and informality can be viewed as substitutes, even though the two phenomena likely have common determinants: weak institutional factors, low human capital, and low productivity.[8]

[7] This is contrary to some literature findings (Vuletin 2008; Schneider 2014); however, the literature focuses predominantly on developing countries. Because about half this sample comprises advanced economies with more developed institutions, including taxation systems, this result could be a function of more efficient—and formalized—agriculture sectors in advanced Europe dominating the sample. In this case, the larger agricultural sector offers more employment opportunities, and we would expect a negative relationship with the size of the shadow economy.

[8] Imposing country fixed effects significantly reduces the explanatory power of these variables, because most do not exhibit strong time variation. Thus, when we control for institutional factors, countries that are more dependent on remittances (and, correspondingly, have higher levels of migration) have smaller shadow economies.

For the full sample, macroeconomic factors appear to be more important than institutional factors. We would expect this given the more highly developed institutions in advanced economies. For emerging economies, however, institutional factors play a stronger role, although productivity is still important. This is also to be expected, given that institutions in many emerging market economies are less developed and, in line with the literature, suggests that institutional elements, such as regulatory quality and government effectiveness, help drive informality.

POLICY OPTIONS

In seeking to identify policy options to address the shadow economy, it is useful to group determinants into two broad categories: (1) "exit" factors and (2) "exclusion" factors[9] (Perry 2007; Oviedo 2009). Exit factors from the formal economy tend to lead to voluntary informal employment, with shadow workers typically earning similar or higher incomes relative to comparable formal workers and enjoying more employment flexibility. In contrast, exclusion factors from the formal economy tend to result in forced informal employment when workers are unable to find formal work. The difference mostly depends on whether, as a result, workers are better off with a formal, compared with an informal, job. In most countries, exit and exclusion factors are present to a varying degree.[10] Where informal activity is driven more by exclusion factors, workers tend to rely on their jobs to provide their income subsistence. Those workers typically have lower skills and less education and are less productive.

Improving Regulation and Institutional Quality

Given the inverse relationship between institutional quality and shadow economic activity, efforts to strengthen institutions can have a dual effect, reducing the shadow economy while also supporting the achievement of development goals. It is well recognized that better institutions foster more equitable and sustainable growth in the long term. More effective governance serves the well-being of broader parts of society, mitigating exit and exclusion factors. Regulatory and institutional reforms are critical to tackling bottlenecks in the business climate,

[9] Exit factors include burdensome and costly regulation, such as high entry costs; trade barriers; complex and excessive taxation and poor tax administration; administrative barriers, including excessive paperwork; corruption; low monitoring and enforcement; smaller benefits to formal employment and registration; low quality of public goods and services (infrastructure, social protection); and individual preference for self-employment. Exclusion factors include lack of opportunities in the formal sector, especially for certain demographics (for example, young or old workers) or ethnic groups; low productivity; low skills; and low human capital.

[10] According to the study based on the 2013 Eurobarometer survey, 24 percent of undeclared workers are driven by exclusion factors, 45 percent by exit factors, and 31 percent by a combination of factors, although the composition varies across countries (Williams and Kayaoglu 2020).

strengthening the rule of law, improving government effectiveness, and combating corruption.

- *Reducing regulatory and administrative barriers.* Lower regulatory burden will lower the cost incentive for participating in the shadow economy. Examples of successful reforms include simplifying registration and licensing processes (for example, automatic licensing in Georgia), creating one-stop-shop registration (Estonia), and reducing registration fees and statutory requirements (USAID 2005).
- *Increasing transparency and engagement.* Adopting measures to promote transparency (for example, though mandatory public electronic auctions for public procurement) and public administration (for example, by improving court system efficiency) can improve the perception of government effectiveness and the link between revenues and expenditure, increasing voluntary compliance. Possible measures include the public identification of tax evaders and targeted public relations campaigns. Adopting industry-based strategies can also be helpful, through continued engagement with industry bodies, advisory programs, clear communication in areas of noncompliance, follow-up audit programs, and prosecution of the worst offenders.
- *Improving governance.* Many emerging market economies still lag behind advanced EU economies in the quality of their judicial systems and property rights, and institutional quality improvement has been uneven across countries (IMF 2017). Although initial conditions (such as resource allocation) and external factors (for example, EU accession) play an important role, reforms focused on improving public administration, transparency, and accountability help form positive feedback.[11]

Taxation-Related Policies

Improving tax administration, reducing regulatory burdens, and enhancing transparency would reduce incentives for informal activities driven by exit factors. Actions aimed at boosting revenues can also be helpful in reducing the shadow economy. The scope for improvement in tax administration varies across Europe; however, many countries face challenges with process automation, organizational structure, and operational performance.[12] Successful policy actions can include increasing tax compliance and promoting electronic payments:

- *Increasing tax compliance* may be achieved by improving registration, audit, and collection. Registration can be strengthened by facilitating the information exchange between government agencies. For example, in most EU countries, firms and workers have a single common business ID for social security, unemployment, and tax agencies (Oviedo 2009). The tax base can

[11] See IMF (2017) for country examples of institution-building paths.

[12] See IMF (2016) for how to improve tax administration efficiency and for country experiences in improving tax administration.

be broadened by gradually eliminating existing distortionary exemptions. Simplifying tax and social benefits systems, if not necessarily tax rates, will reduce tax-compliance costs.

- *Promoting electronic payments* can help increase collections and reduce value-added tax fraud. Several countries have recently obliged businesses to record payments and money transfers through fiscal devices. According to Schneider and others (2013), increasing electronic payments by an average of 10 percent annually for at least four consecutive years can reduce the size of the shadow economy by up to 5 percent. Promoting electronic payments and limiting the use of cash would likely help with shadow activities in which one side of the transaction (typically a consumer) does not benefit from not reporting the transaction (and may not even be aware of contributing to the expansion of the shadow economy through cash payment). Electronic payments may have a more limited effect, where both sides of the transaction benefit from not reporting.

Labor Market Reforms and Human Capital Development

In countries with high labor migration, and where the shadow economy can act as a social safety net, policy actions should focus on improving incentives for informal workers to move into the formal sector. When informal activities are driven primarily by exclusion factors, a sole focus on enforcement and compliance may result in informal workers seeking employment abroad and driving shadow firms out of business. In such circumstances, encouraging private sector job creation and fostering skill formation would help bring firms and workers out of the shadows and promote more inclusive growth.

Policy actions aimed at improving human capital will improve job-search capacity and the earnings potential of informal workers. The relevant labor market and education policies include the following:

- Increasing hiring and firing flexibility in countries with overly restrictive labor laws (for example, labor market reforms in the Slovak Republic), while enforcing effective labor laws elsewhere to maintain a level playing field across enterprises and encourage lawful behavior.
- Strengthening enforcement and monitoring (for example, enforced obligation to register all new workers in Bulgaria).
- Making the labor market more inclusive by developing and implementing customized employment and training measures for the target groups most in danger of social exclusion (for example, young people).
- Creating a favorable employment environment for returning migrants, providing special training, and recognizing practical skills gained abroad.

CONCLUSION

To successfully combat the shadow economy, comprehensive reforms, carefully designed for each country based on its most relevant determinants, are necessary. Measures can vary from regulatory and institutional reforms to tax policies and administration. The menu of policies most relevant for emerging market economies would include reducing regulatory and administrative burdens, promoting transparency, and improving government effectiveness, as well as improving tax compliance, automating procedures, and promoting electronic payments. In addition, a well-designed policy set should address incentives for informal workers to transition to the formal sector, especially in countries that rely more on remittances and where the shadow economy provides a social safety net. Furthermore, policy actions focused on encouraging private sector job creation and fostering human capital development would help bring firms and workers out of the shadows and promote more inclusive growth.

Unlike previous recessions, during the COVID-19 pandemic shadow economies are likely to shrink dramatically in line with the contraction of nonessential services, although some restricted activities may be pushed into the shadows. Workers in the shadow economy are particularly vulnerable because they fall outside the government's support perimeter. Some advanced economies may experience some formalization of informal activities in order for enterprises to benefit from government stimulus measures. Although government benefits provide an incentive for transition to a formal sector, the eligibility conditions may be too restrictive (for example, requirements to be a taxpayer in the previous year, to demonstrate evidence of the lockdown's effect on business). Also, closures and restrictions may have incentivized some activities to operate informally. Taking into account the size and nature of shadow activities and employment in specific jurisdictions will be important when designing policy responses to the pandemic.[13]

[13] An IMF research note by Diez and others (2020) reviews COVID-19 crisis responses and the costs of expanding transfers to informal workers in emerging market and developing economies. An International Labour Organization (2020) brief on the COVID-19 crisis and the informal economy discusses the immediate policy responses to address the consequences of the pandemic for the informal economy. Williams and Kayaoglu (2020) analyze the distribution of undeclared workers by industry and discuss policy options.

ANNEX 2.1. MIMIC ESTIMATION RESULTS FOR EUROPEAN SHADOW ECONOMIES

ANNEX TABLE 2.1.1.

Shadow Economy Estimates, Europe, 2000–06

(Percentage of GDP)

Country	2000	2001	2002	2003	2004	2005	2006
Albania	27.8	28.2	28.0	28.0	28.2	28.3	28.1
Austria	9.3	8.9	9.2	9.4	9.3	9.7	9.5
Belgium	20.8	21.1	21.5	21.7	21.4	21.6	21.2
Bosnia and Herzegovina	34.1	34.3	35.4	34.7	35.3	34.4	33.9
Bulgaria	36.9	37.2	37.9	37.5	36.8	36.8	36.2
Croatia	33.4	33.5	32.8	34.1	33.7	34.3	33.8
Cyprus	28.6	28.5	28.9	29.7	29.9	30.0	30.3
Czech Republic	18.9	19.0	19.5	19.6	19.2	19.2	19.3
Denmark	17.7	17.4	18.1	18.4	18.2	18.3	18.0
Estonia	33.1	34.0	33.8	33.8	33.2	33.5	33.5
Finland	18.1	19.0	19.3	19.7	19.8	19.5	19.6
France	14.3	14.4	14.8	15.2	15.1	15.1	15.1
Germany	15.7	15.5	16.2	16.5	15.9	16.6	16.3
Greece	28.1	28.7	29.3	29.7	30.1	29.8	30.5
Hungary	25.1	25.6	26.8	27.2	26.4	27.2	26.8
Iceland	15.9	15.7	15.9	16.3	16.6	16.5	16.3
Ireland	14.3	14.9	15.2	15.6	15.4	15.8	15.7
Italy	25.6	25.7	26.4	26.6	26.6	27.2	26.6
Kosovo	37.8	36.7	39.2	38.9	38.9	38.7	38.3
Latvia	28.5	28.4	28.5	29.2	28.5	28.6	29.1
Lithuania	33.7	34.2	34.1	34.5	34.6	33.9	33.9
Luxembourg	9.4	9.4	9.2	9.6	9.6	9.6	9.7
Macedonia, FYR	38.2	39.1	38.6	37.5	37.0	37.8	38.3
Montenegro	36.8	36.3	37.4	38.8	37.9	37.7	36.7
Netherlands, The	12.6	12.7	13.1	13.3	13.5	13.2	12.9
Norway	19.1	19.8	20.7	21.5	20.6	20.1	19.7
Poland	27.6	27.6	28.5	28.5	26.8	27.4	27.5
Portugal	23.3	23.7	24.1	24.4	24.5	24.8	24.2
Romania	34.4	34.1	34.6	33.7	33.3	34.5	34.2
Serbia	33.0	32.3	33.4	33.4	32.9	33.9	34.1
Slovak Republic	19.2	18.8	18.9	19.0	19.0	18.9	18.6
Slovenia	27.1	27.6	27.3	28.5	27.9	27.5	27.6
Spain	18.9	19.1	19.5	19.6	19.8	20.0	20.1
Sweden	17.9	18.0	18.4	18.6	18.3	19.0	18.3
Switzerland	9.2	9.5	9.6	9.8	9.6	9.6	9.6
Turkey	29.5	29.2	28.7	28.8	28.7	29.0	29.0
United Kingdom	12.3	12.5	12.6	12.9	12.8	13.2	12.8

Source: IMF staff calculations.

ANNEX TABLE 2.1.2.

Shadow Economy Estimates, Europe, 2007–13

(Percentage of GDP)

Country	2007	2008	2009	2010	2011	2012	2013
Albania	27.4	27.7	28.1	27.7	27.2	27.6	27.6
Austria	9.2	9.2	10.0	9.5	9.1	9.1	9.2
Belgium	21.1	21.3	22.7	21.6	21.5	21.0	21.3
Bosnia and Herzegovina	35.4	35.8	37.4	36.7	36.2	36.5	36.3
Bulgaria	36.2	35.5	38.3	38.5	37.9	37.3	36.9
Croatia	34.1	34.0	35.5	35.7	35.5	35.7	35.0
Cyprus	29.7	29.8	31.2	30.9	30.8	31.0	30.6
Czech Republic	19.3	19.6	20.2	20.1	18.9	18.5	18.3
Denmark	17.9	18.2	18.9	18.3	17.9	17.4	17.7
Estonia	32.0	33.3	34.9	33.2	31.5	31.6	32.0
Finland	18.7	18.8	20.2	19.4	19.2	19.2	19.2
France	15.0	15.1	16.2	15.3	14.7	14.6	14.7
Germany	16.0	15.6	16.6	15.9	15.2	15.4	15.1
Greece	30.1	30.2	31.4	30.9	30.2	29.5	29.3
Hungary	26.1	26.0	26.9	26.8	25.9	25.5	25.6
Iceland	16.6	16.3	16.1	15.7	15.3	15.2	15.6
Ireland	15.6	15.9	16.1	15.6	15.4	15.5	15.4
Italy	26.4	26.7	28.3	27.4	26.7	26.2	26.0
Kosovo	38.2	37.0	37.4	37.0	36.7	37.4	37.9
Latvia	29.3	30.3	30.6	28.2	28.9	28.5	28.4
Lithuania	34.5	34.2	36.4	35.4	34.4	33.7	34.0
Luxembourg	9.4	9.6	9.8	9.8	9.8	9.4	9.5
Macedonia, FYR	37.2	34.8	37.6	37.5	37.4	38.0	37.8
Montenegro	36.0	35.4	37.6	38.5	37.7	37.8	37.7
Netherlands, The	12.9	13.3	13.8	13.1	13.4	13.4	13.2
Norway	19.9	19.8	21.2	20.4	20.5	21.2	21.2
Poland	26.3	27.3	28.2	27.7	26.8	27.2	26.8
Portugal	24.3	24.3	25.7	25.1	24.6	24.5	23.5
Romania	34.9	34.8	36.0	35.0	33.4	33.9	33.8
Serbia	34.2	33.9	34.6	34.5	34.1	34.3	33.7
Slovak Republic	18.0	17.8	18.9	19.1	18.3	18.1	17.4
Slovenia	27.5	27.7	28.9	28.5	27.5	27.7	27.9
Spain	19.8	20.5	21.6	20.8	20.5	20.2	19.9
Sweden	17.8	17.6	18.9	18.2	18.0	18.3	18.8
Switzerland	9.5	9.3	9.6	9.5	9.4	9.5	9.3
Turkey	29.6	29.3	29.4	28.6	27.9	28.2	28.6
United Kingdom	13.1	12.5	13.2	12.8	12.3	12.6	12.5

Source: IMF staff calculations.

ANNEX TABLE 2.1.3.

Shadow Economy Estimates, Europe, 2014–19
(Percentage of GDP)

Country	2014	2015	2016	2017	2018	2019
Albania	27.1	27.5	27.6	27.1	27.4	27.7
Austria	9.3	9.4	9.6	9.4	9.3	9.4
Belgium	21.4	21.4	22.4	22.1	21.7	21.5
Bosnia and Herzegovina	36.6	36.4	37.1	36.8	36.5	35.4
Bulgaria	36.9	36.8	37.2	36.8	36.8	37.1
Croatia	35.5	34.5	33.9	33.5	33.7	34.2
Cyprus	30.2	29.9	29.6	29.2	29.2	29.8
Czech Republic	18.2	18.4	19.5	19.4	19.0	19.2
Denmark	17.4	18.0	18.8	18.1	17.9	18.0
Estonia	31.7	32.2	33.7	33.7	33.6	33.2
Finland	19.4	19.9	20.6	20.2	19.0	19.3
France	14.4	14.2	15.2	14.8	14.4	14.8
Germany	15.2	16.0	16.7	16.0	15.7	16.0
Greece	28.7	28.7	29.0	28.3	27.8	29.4
Hungary	25.3	25.2	26.1	26.2	25.9	26.2
Iceland	15.8	15.8	15.4	16.1	16.1	15.9
Ireland	15.1	15.4	15.2	15.1	15.3	15.3
Italy	26.4	26.0	27.7	27.1	26.0	26.6
Kosovo	37.8	38.5	38.2	38.3	38.8	38.3
Latvia	28.1	27.5	27.9	27.2	27.8	28.7
Lithuania	34.5	34.4	34.7	34.0	34.2	34.4
Luxembourg	9.3	9.4	9.8	9.6	9.5	9.6
Macedonia, FYR	37.0	37.0	37.3	37.9	37.9	37.6
Montenegro	37.4	37.6	38.0	38.2	38.0	37.5
Netherlands, The	12.9	12.6	13.0	12.4	12.9	13.0
Norway	20.9	20.7	19.8	19.9	19.6	20.2
Poland	27.2	28.0	28.2	26.9	27.5	27.5
Portugal	23.3	23.1	24.0	23.5	23.2	24.0
Romania	33.7	33.1	34.3	34.6	33.8	34.2
Serbia	33.4	33.0	33.0	33.0	32.8	33.5
Slovak Republic	16.8	17.2	17.2	17.4	17.5	18.3
Slovenia	27.7	27.4	28.4	28.3	26.8	27.7
Spain	19.7	19.4	20.0	19.7	19.1	19.9
Sweden	18.7	18.6	19.4	19.1	18.3	18.5
Switzerland	9.5	9.7	9.9	9.8	9.8	9.6
Turkey	28.7	28.6	30.1	29.2	28.5	29.1
United Kingdom	12.7	12.9	12.7	12.3	12.5	12.7

Source: IMF staff calculations.

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