

Part **IV.** Labour in Non-Observed Economy

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Introduction

Informal economy is a universal phenomenon. It occurs on a larger or smaller scale in all countries around the world and it generates a range of adverse effects on the social and economic spheres alike. The existence of a shadow economy obscures the picture of the working population and makes it difficult to implement an appropriate labour market policy. People working in the black economy are not protected by law and they are not eligible for any support from the social security system in case they become unable to work (due to health deterioration or accident), neither do they provide for their old age.

In the literature, one can come across numerous terms for economic activity that is not reported to public authorities or statistical offices. Among these, the most common are such expressions as unregistered work or economy, shadow economy, informal work, work in the black economy, clandestine economy, etc. Despite so many expressions in use, what is commonly understood as denoting this form of economic activity is work performed without a formal work agreement with the employer or services provided without reporting the resulting income to the tax authorities and without paying any social security contributions. In reality, however, black economy covers a much broader range of phenomena. This is so because activities undeclared to relevant public authorities can include legally-prohibited activities as well as legal activities the scale of which is partly or entirely concealed. What is more, black economy may refer to both people working outside the official sector of the economy, and those who have registered work but who understate the number of hours worked or who conceal the fact of performing an additional job. This "hidden" sector of the economy may also comprise a part of household production for own use and activities performed by entities which are not under the obligation to register with relevant authorities.

The nature of unregistered work and the legal consequences of providing services in the grey market render extremely difficult all attempts to measure the size of the black economy or to estimate the number of people working within it. Survey studies and indirect methods based on econometric analyses allow to describe only certain aspects of this phenomenon. Moreover, the emerging results are only an approximation of the actual numbers. In view of the above, the existence of the black economy gives rise to considerable challenges for economic and social policies – including protection against illegitimate collection of social benefits, assistance to people who are ineligible for retirement / pension benefits due to their past work in the black economy as well as to those who for various reasons cannot undertake official employment.

In the subsequent chapters of this Part, we will present various methods of estimating the size of the black economy and of unregistered employment. We analyse the causes for the above phenomena and we make an attempt at characterising people who turn to unregistered work. This Part ends with a chapter in which we demonstrate how the existence of the black economy may influence the economy and with a summary which encapsulates our key conclusions and findings.

1. NOE and Unregistered Employment Estimation Methods

Estimating the size and structure of unregistered work is a very difficult task. Considering the nature of this phenomenon, namely the fact that it is neither observable nor registered, it is rather problematic to obtain reliable estimates. Most unregistered work estimation methods focus on demonstrating its outcome as a share in GDP. Only a few methods allow to estimate the number of people involved in this sector of the economy. This ensues above all from methodological drawbacks which prevent a reliable estimation of the number of people involved or the number of hours worked, whereas the estimation of the approximate value of income from unregistered work in total terms is a relatively easier task. It should be emphasised that none of the groups of methods presented below provides a fully reliable estimates of the size of unregistered work or NOE, nor does it allow to exhibit all of its dimensions. This is so because each of these methods examines the phenomenon of unregistered work in a different context (which is not always entirely defined).

The accepted definition of black economy plays a key role in determining the scale of this phenomenon. In the literature a number of expressions are employed to denote this phenomenon, however, all of them refer to the definition provided for in the System of National Accounts.

Box IV.1. Definition of NOE according to the System of National Accounts

Most statistical studies normally use the terminology drawn from the System of National Accounts (SNA93). In accordance with SNA93, all activities which are not included in any statistical registers are jointly referred to as **non-observed economy (NOE)**. The term NOE has been introduced above all to standardise the methodology of estimating basic aggregates of national accounts by national statistical offices – especially when estimating the value of GDP with a view to those forms of activity that are hidden from the national statistical and public authorities.

NOE encompasses all productive economic activities that may not be captured in the basic data sources used for national accounts. SNA93 distinguishes four problem areas of NOE: **underground production** (production activities that are legal but deliberately concealed from public authorities), **illegal activities** (productive activities forbidden by law), **informal activities of household for own use** and **other forms of activity**, which are outside the official statistics due to deficiencies of national data collection and compilation systems (UNECE 2003).

Similarly there are numerous definitions of work in NOE. The most commonly used approach is to adopt that the basic criterion that determines participation in NOE is the failure to report employment. This approach has been employed by the European Commission, OECD and CSO alike.

The definition adopted by the European Commission describes **undeclared work** as: *any paid activities that are lawful as regards their nature but not declared to the public authorities (taking into account differences in the regulatory system of Member States)* (COM 1998). The report released by the European Commission in 2004 describes undeclared work as: *productive activities that are lawful as regards to their nature, but are not declared to the public authorities, taking into account the differences in the regulatory system between Member States* (Renooy et al 2004)¹. Consequently, the scope of undeclared work was extended to include also unpaid activities which are productive (e.g. housework). As for the OECD definition of hidden employment, it refers to *employment (...) which although not illegal in itself, has not been declared to one or more administrative authorities* (OECD 2004a).

More precisely, the above definitions (apart from the definition employed by Renooy et al. 2004) do not cover illegal production and they do not always specify whether activities regarded as concealed work constitute productive activities. Therefore, it can be assumed that they cover the sector of underground production (tax evasion and failure to pay social security contributions are not productive activities) as well as of informal production. Moreover, the European Commission definition is narrower than the OECD definition because it refers only to those activities that are paid and it leaves out a considerable part of home production.

In Poland, NOE is mainly handled by CSO as part of estimation of aggregates of national accounts. The term “hidden economy” (*gospodarka ukryta*), as understood by CSO, means hidden production which includes: underreporting some economic values by registered entities, non-registered economic activity conducted on own account and illegal production, i.e. all activities prohibited by law (e.g. drug production and sale, prostitution, theft, fencing and smuggling). However, in the **national accounts**, similarly to the practices of other EU member states, CSO presents only **underground production estimates**. When it comes to defining the concept of undeclared work,² according to CSO, it covers work performed without a formal employment relationship, i.e. without an employment contract, order agreement, assignment agreement or any other written agreement between the employer and the employee irrespective of ownership sector (including natural persons and individual agricultural holdings). Neither can such work be performed as a result of nomination, appointment or election. People performing undeclared work are not eligible for social insurance and therefore they do not have the right to receive any social security benefits. Moreover, the period when undeclared work is performed is not counted as a contribution period from the point of view of the Social Insurance Institution (SII), employers do not deduct relevant SII

¹ This definition has been hammered out for the purposes of the mentioned Report, whereas the official definition used by the European Commission is included in the Communication of 1998.

² This definition was employed in the LFS module survey on “Undeclared work” which was conducted in August 1995, August 1998 and in the 4th quarter of 2004.

or Labour Fund contributions from remuneration and income from undeclared work is not taxed with personal income tax. According to CSO, undeclared work also means work performed on one's own account, if the resulting financial obligations towards the state are not fulfilled (CSO 2005).

In the subsequent parts of this chapter, whenever referring to undeclared work, we use this term as understood by CSO. By NOE,³ we mean legal activities or their parts which have not been registered, or activities where income is not reported and consequently taxes and social insurance contributions are evaded. Whenever possible, we also take into consideration work performed for households or other entities, if the resulting financial obligations towards the state are not fulfilled. Undeclared workers will be included irrespective of whether their work is principal, additional, permanent or temporary.

In the literature it is possible to distinguish some groups of methods of measuring undeclared economy and work, namely **direct** and **indirect** methods as well as **macroeconomic modelling** (see Box IV.2.). Regardless of different characteristics of these methods, they all have one drawback in common, namely they provide only roughly approximate estimates as to the size of NOE. Another shared characteristic of majority of methods is that they measure the undeclared economy as a whole and the result is presented in absolute terms or as a share in GDP.

Box IV.2. NOE measurement methods

Direct methods include different types of random sample survey studies and interviews (of enterprises, households and individuals). These methods allow to work out estimates of the scale of undeclared work (expressed as the number of employed persons or of hours worked) together with information on social and economic characteristics of the entities involved, on motives for undertaking such work and income derived therefrom. The use of direct methods in estimating the scale of undeclared work entails considerable cost and risk of a low response rate as well as of missing or untrue data. In view of the above, it is commonly accepted that results based on questionnaire surveys constitute the lower bound of undeclared labour estimates. This is so because respondents tend to conceal their current status in the labour market rather than to lie that they work as unregistered employees. Irrespective of the above-mentioned drawbacks, questionnaire surveys – if conducted appropriately – seem to be the best source of data on economic and social aspects of undeclared work and on motives for undertaking it.

Indirect methods are methods which are much more commonly used in estimating the scale of undeclared work. They are based on interpreting phenomena observed in the economy as the so-called tracks of undeclared economy. These methods are used by all EU member states in their national accounts when estimating total outcome generated in the economy with a view to outcome generated in the non-observed economy (exhaustiveness of national accounts). Indirect methods comprise, for instance, discrepancy analyses between data sources and sensitivity analyses. These methods usually provide data on the size of undeclared economy as a share in GDP, although the use of discrepancy analysis for data on labour demand and supply allows to generate an estimated number of people working in NOE. It should be emphasised that results obtained with these methods may be distorted due to methodological differences between the compared data bases.

Modelling the scale of non-observed employment and economy is carried out using a range of econometric techniques which comprise:

- monetary methods,
- electricity consumption methods,
- structural equation modelling – used above all in social and marketing studies,
- methods based on simple growth models and on rational behaviour theory.

Macroeconomic modelling used to measure NOE only to some extent allows to determine the number of people involved in this sector of the economy. Most of these methods present the size of NOE as a percentage share of GDP and they do not allow for a disaggregation of results for sectors of the economy or categories of expenditures. Moreover, there exist a number of reservations as to both assumptions made and results obtained. Among them, the most significant are:

- no well-defined object of a study – it is difficult to determine which areas of NOE it measures,
- adoption of incorrect or simplified model assumptions, which renders impossible the use of results obtained (it concerns especially the monetary and electricity methods),
- divergent results when estimating NOE for one country using the same assumptions but different methods or using the same method by a number of authors,
- results thus obtained cannot be used with other estimates, especially with results obtained with indirect methods.

As indicated at the beginning of this chapter, questionnaire surveys allow only to determine the **lower bound of shadow economy estimates**. Therefore, in order to identify its role in the economy in a more precise way, one should refer to other methods. The official data source on the share of NOE in GDP is the national accounts published by CSO. CSO obtains its estimate by applying a combination of methods (among others, they use data from direct studies and discrepancy analyses). In accordance with data provided by CSO, the share of the shadow economy in total GDP in Poland amounts to approximately 12-15 per cent, where about 2/3 of outcome generated in NOE are produced by registered units which understate their revenues and profits. As opposed to data on employment, the

³In the subsequent parts of this report the following terms are used interchangeably: non-observed economy, grey economy and informal economy.

largest share in outcome generated by NOE does not fall on construction but on the trade and repairs, whereas agriculture plays a relatively insignificant role. The marginal share of agriculture results above all from low productivity in agriculture in Poland. Consequently, a large share of people informally employed in agriculture translates into a minor contribution of this sector in outcome generated by NOE. Interestingly enough, the share of GDP produced in the shadow economy has been on a steady decline,⁴ which is a tendency opposite to those observable in most OECD countries.

Table IV.1.
Share of NOE in GDP for 1994-2004 in current prices

Details	percentages										
	1994	1995	1996	1997	1998	1999	2000*	2001*	2002*	2003*	2004*
Gross domestic product (excluding NOE, unpublished category)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gross domestic product (including NOE)	117.2	116.6	115.9	115.2	115.3	114.5	117	116.3	115.3	115.4	114.4
NOE estimate:	17.2	16.6	15.9	15.2	15.3	14.5	17	16.3	15.3	15.4	14.4
- in registered units	12.1	11.9	11.3	11.0	11.0	10.4	11.7	11.1	10.1	10.3	9.5
- undeclared work performance	5.1	4.7	4.6	4.2	4.3	4.1	5.3	5.2	5.2	5.1	4.9
Industry	1.9	1.9	1.6	1.5	1.6	1.4	1.3	1.2	1	0.9	1.2
Construction	3.0	3.1	2.9	2.5	2.5	2.5	2.5	2.4	2.2	2.2	2.1
Trade, repairs, hotels and restaurants	8.6	8.6	7.8	7.2	6.9	6.5	6.5	7.3	6.4	6.5	6
Transport, storage and communications	1.2	1.0	1.0	0.9	0.9	0.8	1	0.4	0.6	0.6	0.5
Real estate and business activities	0.9	0.6	1.0	1.6	1.9	1.9	2.6	2.3	2.3	2.4	1.9
Other sections	1.6	1.4	1.6	1.5	1.5	1.4	3.1	2.7	2.8	2.8	2.7

* Data for 2000-2004 are not comparable with data for previous years. In 2006, CSO updated estimates of shadow economy for 2000-2004, taking into account, among others, results of the module survey of 2004.

Source: CSO (2002), CSO (2006b).

Apart from official statistics, there are also estimates of shadow economy in Poland based on other sources and other methods (see Table IV.2). It is only the results obtained by Johnson et al. (1997) for the period 1994-1995 that are similar to the figures published by CSO. The remaining studies indicate that the scale of the black economy in Poland is even twice larger than the official estimates. What is more, the results obtained by Schneider (2002) suggest that the share of the black economy in the Polish economy has been increasing in the last years. The interpretation of these results gives rise to certain difficulties. It is not clear whether the shadow economy definitions used in the above two estimation procedures are identical. For instance, Schneider (2006) limits shadow economy to legal paid activities that involve pecuniary payoff, whereas he leaves out – similarly to CSO – illegal production and home production. On the other hand, he makes an assumption that one of the indicators describing the evolution of NOE is the rate of currency per capita which may in fact depend on the scale of illegal production. Consequently, there is a discrepancy between the definition of hidden production as employed by CSO and the definition of shadow economy as used by Schneider. Unfortunately, it is very frequent that estimates of the black economy do not clearly refer to any definition of the term, which hinders comparisons of results between different data sources.

Table IV.2.
Scale of NOE in Poland according to various measurement methods

Method	Share of NOE in GDP					
	1989 -1990	1990 -1993	1994 -1995	1999 -2000	2001 -2002	2002 -2003
Electricity consumption method*	17.7	20.3	13.9	–	–	–
Electricity consumption method**	27.2	31.8	25.9	–	–	–
DYMIMIC***	–	22.3	–	27.6	28.2	28.9

Source: * Johnson et al. (1997), Johnson et al. (1998); ** Lackó (1999); *** Schneider (2002), Schneider (2006).

Moreover the problem of reliability of the results based on econometric methods comes to light.⁵ This is so because the same electricity consumption method produced completely different results for the period 1989-1995. Thus, it is controversial which estimates are

⁴ A major increase in the NOE estimates between 1999 and 2000 was rather artificial and resulted from an upward adjustment of NOE estimates starting from the year 2000. The unadjusted values suggested that the share of NOE declines slowly but steadily

⁵ A critical review of the electricity consumption method as well as of other econometric methods is presented, among others, in Thomas (1999), OECD (2002a).

closer to the actual number. On the other hand, the estimates worked out by Schneider can also be questioned as overstated. Is it really probable and reliable that almost one third of production is effected in the shadow economy? Notwithstanding the above, there is no certainty that the estimates calculated by CSO are closer to reality than the above-mentioned results. All in all, it should be acknowledged that the shadow economy constitutes a significant element of the Polish economy and that it accounts for a considerable share of GDP. The scale of the black economy is greater than in such countries as Germany, France and Great Britain, but it is comparable to that of other countries in the CEE region.

2. NOE and Undeclared Employment Determinants

When analysing the phenomenon of undeclared work, one should begin with answering the question about what makes particular persons, enterprises and households to conceal their activity or income. The key factor is the **financial motive** – higher income from business activity or performed work, or lower payments relating to the purchase of goods or services produced or provided in NOE as a result of avoidance of taxes and other related contributions imposed by the state. Apart from taxes and social insurance contributions, the following are often quoted as factors determining the scale of NOE: **regulations** – in particular those pertaining to the labour market, **social transfers**, **quality of public sector services** (see, for instance, Schneider, Enste 2000, Johnson, Kaufmann, Zoido-Lobaton 1998). In practice, each of the above-mentioned factors is a set of more detailed factors which affect the scale of the black economy in different ways, shape the structure of this phenomenon and motivate people to get involved in NOE. The final extent of the shadow economy depends of the intensity and characteristics of each of the above-mentioned groups of factors as well as of other determinants – much more difficult to measure – which arise from the **general macroeconomic situation** of a given country, nature of relationships between particular macroeconomic aggregates, production structure, level of education and **strictly sociological factors** such as mentality of a given society, risk-aversion, civic virtue, confidence in public authorities and the integrity of the tax system (Schneider, Enste 2000, Hanousek, Palda 2003, OECD 2004a).

The subsequent part of this chapter provides a description of basic groups of factors shaping the scale of NOE and of undeclared work. Moreover, we analyse the impact of minimum wage and typically sociological factors on NOE.

2.1 Tax burden and social insurance contributions

A vast majority of authors who study NOE and undeclared work consider taxation as the fundamental or one of the key causes that influence the extent of the above phenomena. Most commonly, tax burden is defined as the amount of mandatory contributions to be paid to the state or public institutions that are imposed on the employer or the employee. It is assumed that it is the amount of tax burden that is the basic motive for undertaking undeclared employment and for concealing a part or all of performed work to avoid taxation.

The impact of taxation on the process of shaping labour demand and supply translates above all into the disturbed relationship between work and leisure. A change in labour demand resulting from increased taxes occurs if the total labour costs (i.e. the total amount of wage effectively paid by the employer and comprising the net wage plus all additional labour charges) increase due to the increase of the fiscal burden. On the other hand, labour supply decreases, if the increased tax burden adversely affects the amount of net wage, thus lowering the attractiveness of work in relation to untaxed leisure (see Bukowski et al. 2006). The final influence of taxation on the labour market depends on the elasticity of labour supply and demand, and consequently on the impact of income and substitution effects on employees and employers.⁶ The transition from employment to non-employment (i.e. to unemployment or inactivity) is also affected by the tax elasticity of net wages that determines the possibility of shifting the tax burden from the employer to the employee. Also the availability and financial attractiveness of social insurance benefits which influence the extent of labour supply elasticity in relation to net wages plays an important role in this process. Based on theoretical premises, it can be reasonably assumed that the substitution effect generally prevails over the income effect, and that in an economy which comprises both official and undeclared labour markets, tax increases lead to the substitution of registered work for undeclared work or leisure (see Bukowski et al. 2006). Whether individuals chose the former or the latter depends largely on individual factors but also on the combination of other identified determinants shaping the size of the shadow economy – in particular on the integrity and complexity of the tax system, degree of detectability of tax evasion, and on the general economic conditions. Moreover, it is very difficult to empirically demonstrate to what extent changes in tax burden lead to changes in overall labour supply and demand, and when do they bring about shifts in supply and demand between the official and informal sectors of the economy. These difficulties stem from, among others, scarce availability of statistical data. For this reason, in the empirical literature which examines the impact of increased taxation on the labour market, the existence of informal economy is very rarely taken into account.

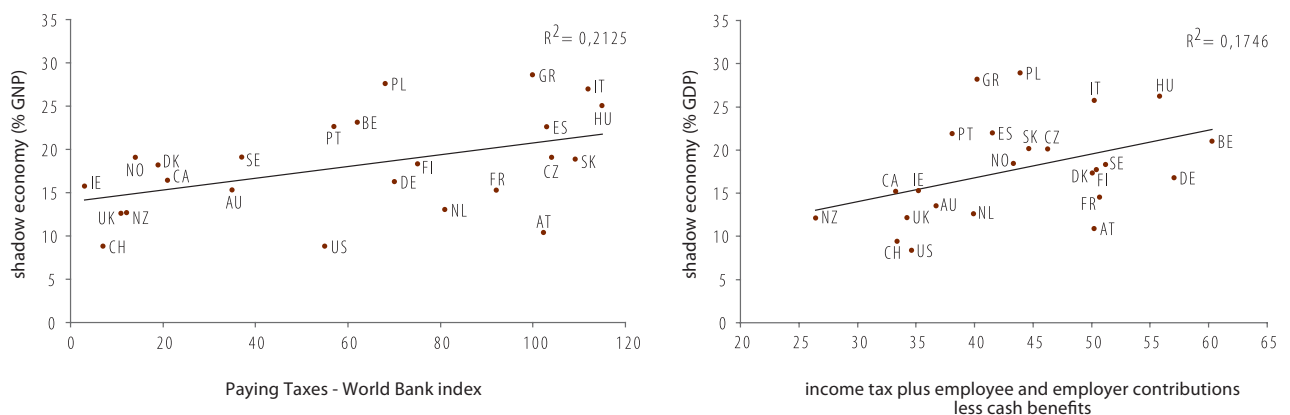
⁶ We refer to the income effect when, as a consequence of increased taxes, the actual income from work of a given household decreases, which leads to increased labour supply. This mechanism is supposed to result in bringing net income to the level from before the tax increase. As for the substitution effect, a decrease in the relative cost of leisure, alongside an increased cost of income from work, makes workers substitute work for leisure.

When analysing links between taxation and the extent of the black economy, it should be borne in mind that the key condition for the emergence of the above phenomenon is the possibility of gaining notable profits by those offering work and by those benefiting from it. In other words, undeclared work must be cheaper than taxed employment and wages must be higher or at least comparable with net wages offered in the official sector of the economy (in both cases, with a view to the cost of potential disclosure of the tax evasion). If the employer have the possibility of flexible adjusting the net wages in reaction to tax changes, then the additional taxation of income from work in the official economy will bring about a decrease in the households disposable income in comparison with the situation from before the tax increase. The greater the change in the tax wedge, the greater this decrease. Therefore, theoretical arguments (see Bukowski et al. 2006) prove that in the long term when wages are fully flexible, changes in tax burden affect the labour market exclusively through changes in labour supply. Nevertheless, in the short term, if downward wage rigidity occurs (for instance, in the presence of statutory minimum wage or powerful trade unions), this mechanism is limited. In the latter situation, an increase in taxes leads to decrease in labour demand for low-productivity, low-paid workers. These people, in view of the possibility of working in the shadow economy, are more likely to react to tax impulses by replacing the legal labour supply rather than by decreasing overall labour supply (see Bukowski et al. 2006).

In fact, nearly all available empirical studies show that taxation is positively correlated with the size of the shadow economy. This correlation emerges, in most cases⁷, irrespective of the applied taxation indicator. Taxation can be measured by variables that refer to indirect or direct taxes as well as social insurance contributions, or by indices that cover all or some of the above-mentioned elements. Effective tax rates imposed on the average production worker income (APW) or Paying Taxes Index of the World Bank are such indicators. The former measure takes into account additional labour costs as well as any other monetary benefits. The World Bank index refers to the total tax burden incurred on the business activity of a medium size enterprise together with administrative burden related to paying taxes.⁸ In both cases, increased levels of these indicators are accompanied by greater share of the black economy. The above connections, although measured only by simple correlations, seem to be significant but not strong enough to regard taxes as the only factor deciding on the total size of the shadow economy.

Chart IV.1.

The size of the shadow economy (as percentage share of GDP) versus the World Bank taxation index and the sum of income tax and social insurance contributions decreased by monetary benefits expressed as a percentage share in the average production worker income (APW) for a single person at the level of 167 per cent of APW



Note: In the left graph, the extent of the shadow economy and the index value have been derived from the World Bank 2006b and they pertain to the year 2005. In the right graph, the extent of the shadow economy has been derived from Schneider 2006 and it pertains to the estimates for 2002-2003.

Source: Own calculation based on data provided in Schneider 2006, World Bank 2006b and OECD 2004a.

Although to some extent high taxes enhance the expansion of NOE and increase the share of the population involved in undeclared work, they do not constitute an imperative or – even more so – sufficient condition of its growth. In other words, a high tax wedge between net and gross wages as well as high tax rates are not the only motive for undertaking employment in the black economy. Although the CEE and Southern European countries are characterised by a positive correlation between the above two factors, as indicated in Chart IV.1, in some developed Western European countries, high tax rates are accompanied by low levels of undeclared work and small NOE. This indicates that there must be other factors related to taxation which affect the size of the shadow economy to a greater extent than tax rates. Johnson et al. (1998) argues that it is not the level of tax rates but the functioning of the tax system as a whole that is mainly responsible for the scale of NOE. According to him, it is high instability of tax regulations, precariousness of procedures and high level of discretion in tax decision making that are more likely to push people to switch to NOE than the effective and marginal tax rates. Countries which reconcile high marginal and average tax rates with a low burden stemming from functioning

⁷ Friedman et al. (2000) attained a negative correlation between direct taxes and the size of the shadow economy. However, after the introduction of the GDP per capita variable (which reflects the wealth of a given country) to the model, this negative correlation ceased to play a role. The authors explain this by referring to the fact that wealthier countries are characterised by better-functioning administration and higher tax rates.

⁸ For a more detailed description of the index see the Appendix 5 to this report.

of the tax system exhibit small level of NOEs expressed as a share in GDP (e.g. Austria, Sweden). Countries which experience an opposite relationship between the above two factors – low marginal tax rates and highly bureaucratic tax systems – are often characterised by higher shares of NOE in GDP. Corruption exerts a similar impact on the shadow economy because it constitutes an informal burden which is supplementary to or which partly replaces taxes. Another explanation for the low correlation between tax rates and the scale of the shadow economy can be found in the dual equilibria model (see subchapter 2.3).

Schneider (2006) also claims that a large number of available tax deductions as well as deficiencies of the tax system – such as narrow tax base – exert an adverse effect on the rate of undeclared labour supply. This ensues from the fact that a malfunctioning tax system allows for lawful and relatively simple evasion of higher taxes, that in turn increases the cost of functioning in the informal sector and makes it scarcely competitive compared with official employment. In this context, the governmental measures intending to widen the tax base by way of eliminating tax deductions as well as legal loopholes may paradoxically lead to the expansion of the black economy. This pattern could be observed in Austria towards the end of the 1980s. The tax reform implemented in 1989 was supposed to lower marginal tax rates as well as eliminate some tax deductions and loopholes in the tax law that applied in Austria at that time by simplifying the tax system and by covering more areas by relevant tax law regulations. One consequence of these developments was an increase in the size of the shadow economy, which means that the resulting widening of the tax base to cover previously untaxed areas and increased regulation cancelled out the positive impact of lower average and marginal tax rates. The above example demonstrates how greatly changes in the tax system and regulations can influence the size of the informal economy. However, the literature does not provide any firm consensus as to how the impact of these factors should be assessed and consequently what panacea should be applied. On the one hand, DeSoto (2000) argues that the increased size of the shadow economy in such circumstances results above all from increased regulation and public intervention in the fields where they should never occur or from their completely unacceptable nature from the perspective of business entities and units. On the other hand, however, Schneider 2002 (after Cebula 1997) points to the fact that maintaining maximum marginal tax rates at the same level may at most limit the shadow economy expansion in the long run, whereas in order to actually decrease the size of this phenomenon tax inspections must also be rendered more rigid and penalties for failure to fulfil tax obligations must be increased. The impact of the scope and nature of regulations on the shadow economy is further discussed in the next subchapter.

2.2. Regulations

Labour market regulations and institutions also constitute a very important factor which affects the size of the informal economy. In this context, it is the labour market regulations that are particularly significant as they set out the rules of establishing and carrying on business activities, employing workers, securing appropriate working conditions, etc. They also have a great influence on the future business prospects as well as on any additional business costs (not only financial). Similarly to taxation, there is no consensus in the literature as to whether it is the regulations themselves and their number or the way they are enforced (or not) by the state that have an impact of the extent of the shadow economy.

Participation in the official economy is characterised by relatively high costs of entering and lasting in the market compared with the informal sector.⁹ In order to commence a legal business activity one has to register the enterprise as well as obtain all required licenses and permits. The necessity to fulfil all formalities related to running a business and employing workers generates additional costs. Empirical studies¹⁰ indicate that these costs (financial, time needed to complete all formalities, deferred income when waiting the issue of relevant licenses and permits, etc.) often make the setting-up and running of a registered business “costly” and thus hardly competitive in relation to activities carried on in the shadow economy. This concerns above all small enterprises which employ one or a couple of employees and which carry on their activity on a small scale without it being necessary to apply for special licenses or permits, enterprises that do not need to establish an easily identifiable office, or to maintain contacts with the public sector, etc.

One characteristic of work in the official economy is the requirement to fully regulate employment relationship. This means that the employer is under the obligation to conclude a contract with the employee (most commonly in writing), which determines the terms and conditions of performing work and provides the employee with at least the minimum of protection. The employer is also obliged to register the fact of hiring an employee with the relevant institutions, to apply for social insurance, to inform the tax authorities and other institutions, as required by law, and to provide such employee with appropriate working conditions, which in particular are safe and healthy. Hence, entrepreneurs who intend to legally employ their employees may shift some employment costs to the latter by, for instance paying them lower wages (than possible). Alternately, employers can offer higher wages on condition that the employment relationship remains undeclared and the above-mentioned costs are avoided.

Regulations are often measured by referring to the number of legal acts, restrictions on employing foreigners, trade barriers, etc. An increased number of legal acts regulating the process of setting up and running an enterprise, of building and purchasing real properties and of employing workers may constitute a considerable obstacle impeding the entrance of small companies into the official sector

⁹ In the case of the shadow economy, these entrance costs include above all information about employers, principles of functioning of this sector as well as about employment opportunities. The collection of this information also requires time and therefore generates certain costs (including financial costs, in the form of, for instance, bribes)

¹⁰ This concept is discussed in greater detail in, among others, Schneider (2000), Johnson et al. (1998), OECD (2004a).

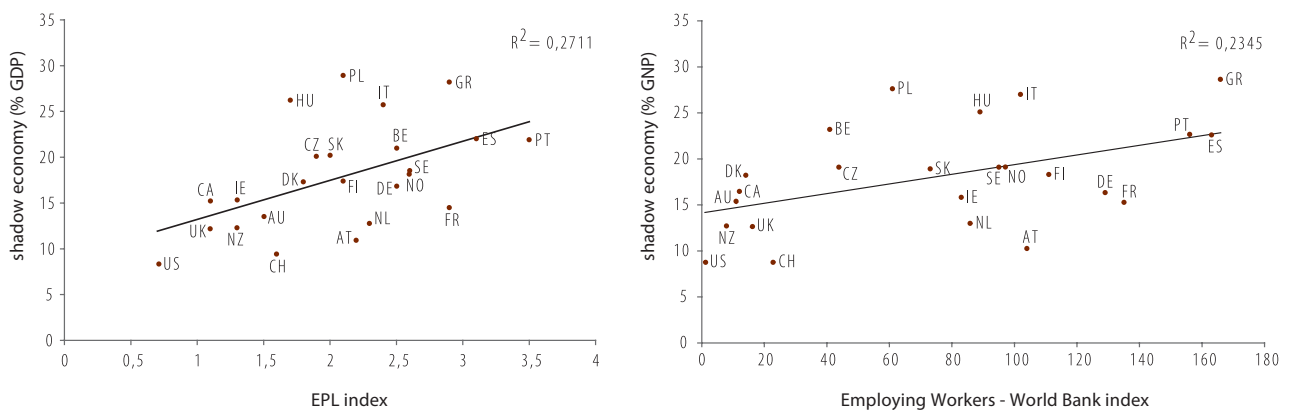
of the economy and narrowing their chances of surviving within it. Too large a number of obligations imposed by the law in the form of concessions, licenses, barriers to trade or limited access to capital can entail increased costs: direct costs – relating to the taxation of labour, and indirect costs – relating to the fulfilment of obligations imposed by them. These increased costs lead to the expansion of NOE because a great part of the above obligations can be shifted onto employees thus causing a rise in undeclared employment (DeSoto 2000, Schneider, Enste 2000).

The question of how labour law flexibility affects the extent of undeclared work has not been thoroughly examined in theoretical or empirical research studies. The indicated effects are often of intuitive nature which results from the assessment of the impact that this factor has on the labour market as a whole and on particular age groups. In the literature on the subject, no consensus has been reached as to the impact of labour law flexibility on the overall labour market. This is so because the degree of legal regulation may bring different results in different countries as it depends on the entire situation in the labour market (Bukowski et al. 2005). In the short term, the degree of labour law flexibility shapes the relative status of various social groups, i.e. the employment structure, although it has no influence over the actual level of employment. In the long term, the impact of flexible labour law regulations is largely determined by other social and economic factors as well as by the institutional framework of the labour market.

Regulations, including broadly understood labour law, may be treated as a certain specific form of burden the nature of which is similar to that of the tax burden and as such it exerts a comparable influence on the shadow economy. High flexibility in employing and dismissing workers lowers the relative cost of participation in the official sector of the economy and allows to adapt relatively easily to the changing business environment without infringing the labour law. Moreover, taking into account the cost relating to undeclared employment, the latter becomes less competitive (other factors remaining unchanged) in relation to employment in the official economy, which leads to a decrease in the size of the shadow economy. This correlation is evidenced by a simple comparison of the size of the black economy with the Employing Workers Index used by the World Bank as well as with the Employment Protection Legislation (EPL) index, as presented in Chart IV.2.

Chart IV.2.

Employing Workers Index used by the World Bank and the Employment Protection Legislation (EPL) index versus the shadow economy



Note: In the left graph, the extent of the shadow economy has been derived from Schneider 2006 and it pertains to the estimates for 2002-2003. In the right graph, the extent of the shadow economy and the index value have been derived from the World Bank 2006b and they pertain to the year 2005.

Source: Own calculation based on data provided in Schneider (2006), World Bank (2006b) and OECD (2004a).

In the two cases presented above, the increase in the index value means less flexible and more restrictive labour law. The EPL index¹¹ consists of three elements: regulations relating to permanent contracts, regulations relating to fixed term contracts and temporary work and regulations relating to collective layoffs. The World Bank index¹² comprises the following elements: rigidity of employment index (including regulations relating to hiring and firing employees, rigidity of working hours), non-salary costs of hiring a worker and costs involved in dismissing a redundant worker (costs resulting from the statutory periods of notice, severance pays and penalties imposed on the employer for firing an employee). Irrespective of differences in the construction of the above-mentioned indices and of a different scope of information that they carry, in both cases, a positive correlation was observed between the increase in the index value and the size of the shadow economy. This may mean that rigid labour law, which does not allow to hire and fire employees in a relatively simple manner or to freely shape working hours, may affect the extent of undeclared work. However, it should also be borne in mind that the above conclusions are not supported by a rigorous empirical verification and thus they do not take account of a range of other factors which may shape the presented relationships. In particular, the above correlation may be spurious, if the degree of labour market regulation – which does not in itself have any impact on the size of the shadow economy – is at the same time correlated with another factor (e.g. the degree of overall regulation of business activity), which effectively determines the size of NOE. In this

¹¹ The EPL index has been worked out by the OECD to measure labour law regulation flexibility. This issue is discussed in greater detail in Bukowski et al. 2005.

¹² The values of particular components of this index are determined for a particular type of employer who hires employees with features indicated in the index methodology. See Appendix 6 for details.

context, De Soto (2000) points to regulations concerning the real property market which, in a number of countries, make it impossible to accumulate enough capital to carry on an official business activity and thus force numerous companies into the black economy.

As in the case of taxation, Johnson, Kaufmann, and Shleifer (1997) argue that the most significant factor affecting the size of the shadow economy is the effectiveness of enforcing particular regulations rather than the regulations themselves. An extensive number of legal acts and of the resulting obligations for entrepreneurs, if it is not efficiently enforced by state authorities, should not have any significant impact on the size of the black economy. In view of the above, failure of state authorities to effectively fulfil their duties, similarly to taxation, may modify the impact of law, including labour law, on the extent of black economy.

2.3 Quality of public services and dual equilibria hypothesis

One of the many tasks of public administration consists in ensuring a smooth law enforcement, safety of business activity (e.g. by effective contract enforcement) and assistance to people, who for various reasons are unable to generate income from work (unemployed people, working poor). These services are financed from the state budget revenues or from the local government budgets which are fed mainly by revenues from taxes and social insurance contributions. The existence of the informal sector of the economy results in a decrease in public revenues and consequently in the deterioration of the quality of services provided by the state. This may manifest itself in deficient judicial system, lack of effective protection of employee rights, low efficiency of the social insurance system or ineffective civil and business law enforcement. In such case, irrespective of good-quality legal solutions, the lack of effective control over their enforcement as well as low probability of detecting illegal activities leads to the increased size of the shadow economy (Schneider 2006). This, in turn, results in the lowering of state revenues which usually translates into higher tax rates.

An alternative mechanism where the quality of public services affects the size of the shadow economy is presented in the so-called **dual equilibria hypothesis**. This hypothesis allows also to explain the rather weak correlation between tax rates and the extent of NOE in European countries. The above concept was formalized in the study of Johnson et al. (1997). It treats the quality of public services as a factor affecting the size of the informal economy, however, not in terms of the effectiveness of the system of controlling and monitoring the economy, but in terms of incentives faced by entrepreneurs and employees. A significant role within this concept is played by the non-tax obligations imposed on entrepreneurs, i.e. obligations that do not finance the delivery of public services. This group of obligations includes various types of regulations which determine the degree of complexity of procedures related to the setting-up and running of business activities, as well as a burden resulting from corruptive practices in the public and private sectors. The key factors determining the quality of public services include above all the level of spending on the provision of these services (depending on the tax revenue) and the procedural effectiveness of public institutions in fulfilling their tasks.

Assuming that, in a given economy, the quality of public services, the amounts of proceeds from taxes and the size of the shadow economy are moderate. Moreover, tax rates are more or less stable and fixed at a high level. At some point, as a consequence of a reform, the efficiency of state institutions increases and – what comes with it – the quality of public services improves (e.g. improved functioning of the judicial system consisting in shortening the time necessary to handle business cases and thus increasing the degree of protection of ownership rights by the state). Entities which have not been prone to pay taxes and social insurance contributions due to insufficient quality of public services¹³ register their business activity.¹⁴ The tax base increases and thus gives a green light to further improvement of the quality and scope of public services. The process continues until an equilibrium is attained which is characterised by small extent of the black economy, low degree of regulation, wide tax base, considerable tax revenue and high quality of public services (A equilibrium). In accordance with the second scenario, increased regulation, decreased effectiveness of public institutions and increased corruption discourage entrepreneurs to register their business activity. Tax revenue goes down and the quality of public services gets worse which results in further decrease in tax proceeds. In the final phase, the economy attains an equilibrium where tax revenue and the quality of public services are low, the scope of non-tax obligations is wide and the size of the shadow economy is considerable (B equilibrium).

Both scenarios leave tax rates fixed. According to the dual equilibria hypothesis a certain level of taxation may be accompanied by a number of combinations of the size of NOE and the level of tax revenue. Relatively high tax rates may coincide with relatively small extent of the shadow economy, if the institutions function well enough and provide high-quality public services, and the burden resulting from regulations, corruption and complexity of procedures relating to the setting-up and running a business activity is small. If the dual equilibria hypothesis is indeed valid, then the low correlation between the share of NOE in the economy and the amount of tax burden suggests that it is above all regulations and institutional efficiency and – to a lesser extent taxes *sensu stricto* – that are behind the differences within the OECD countries.

¹³ It can be assumed that they purchased these services from private entities or delivered them themselves. For instance, Johnson et al. (2000) claims that 90 per cent of the polled Russian managers declared that companies operating within their sector pay for "private protection". In Slovakia and Poland this share amounted to 15 and 8 per cent respectively.

¹⁴ A similar effect would be prompted by the lowering of non-tax obligations imposed on entrepreneurs.

In order to illustrate the results of the above-mentioned theory, we have referred to the cluster analysis, thus dividing European countries into 3 sets in accordance with three groups of factors:

- size of the shadow economy,
- share of total taxes in GDP (as a measure of tax revenue),
- rule of law and government effectiveness indices (as a measure of the quality of public services).¹⁵

Table IV.3.
Dual equilibria hypothesis in the group of European countries (in 2002-2003)

	Factors	N	Minimum	Maximum	Average	Standard deviation	
A	shadow economy as % of GDP	10	10.9	18.4	15.4	2.71	
	% share of taxes and contributions in GDP	10	28.8	50.1	41.5	6.12	
	rule of law index	10	1.4	2.0	1.8	0.18	
	government effectiveness index	10	1.5	2.1	1.9	0.26	
	regulation index	10	1.0	3.0	2.5	0.71	
	corruption perception index	10	6.9	9.7	8.5	0.93	
	cost of setting up and carrying on business activity*	10	5	47	17.7	12.93	
	including the Scandinavian countries:						
	shadow economy as % of GDP	4	17.3	18.4	17.9	0.58	
	% share of taxes and contributions in GDP	4	43.3	50.1	46.4	3.15	
	rule of law index	4	1.9	2.0	1.9	0.02	
	government effectiveness index	4	2.0	2.1	2.1	0.05	
	regulation index	4	1.0	3.0	2.3	0.96	
corruption perception index	4	8.8	9.7	9.3	0.39		
cost of setting up and carrying on business activity*	4	7	14	10.5	3.51		
B	shadow economy as % of GDP	5	32.6	41.3	37.9	3.35	
	% share of taxes and contributions in GDP	5	27.9	33.1	29.8	2.30	
	rule of law index	5	-0.2	0.7	0.3	0.41	
	government effectiveness index	5	-0.2	1.0	0.5	0.54	
	regulation index	5	2.0	4.0	3.2	0.84	
	corruption perception index	5	2.8	5.5	4.1	1.02	
	cost of setting up and carrying on business activity*	5	15	71	38.6	25.23	
other	shadow economy as % of GDP	10	20.1	29.4	24.4	3.72	
	% share of taxes and contributions in GDP	10	31.4	45.1	37.0	4.08	
	rule of law index	10	0.3	1.5	0.9	0.36	
	government effectiveness index	10	0.6	1.8	1.0	0.40	
	regulation index	10	2.0	3.0	2.9	0.32	
	corruption perception index	10	3.6	7.6	5.3	1.44	
	cost of setting up and carrying on business activity*	10	20	111	55.7	25.37	

*data for 2005.

Source: shadow economy as percentage of GDP – Schneider (2006); percentage share of taxes in GDP (share of total receipts from taxes and social contributions after deduction of amounts assessed but unlikely to be collected in GDP) – Eurostat; Rule of Law Index, Government Effectiveness Index – World Bank; Regulation Index – Heritage Foundation; Corruption Perception Index – Transparency International; cost of setting up and carrying on business activity (position in the “Doing Business” ranking) – World Bank.

¹⁵ Higher index values mean a higher quality of public services. See Appendices 7 to 9 for a more detailed description of indices presented in Table IV.3.

The results seem to confirm the dual equilibria hypothesis in the group of European countries. The first cluster may be attributed to **A equilibrium** and is characterised by the low share of NOE, high quality of public services (high index values for rule of law and government effectiveness) and a relatively high share of tax proceeds in GDP. The Scandinavian countries distinguish themselves in the first group by their particularly high level of taxation. Moreover, they are characterised by very high quality of public services and an exceptionally small burden resulting from regulations, corruption and barriers to running business.¹⁶ Consequently, the size of the shadow economy in these countries is rather small. The group of countries which are in a similar situation to that described by the hypothesis includes: Austria, France, Germany, Netherlands, Ireland and Great Britain. These countries are characterised by lower proceeds from taxes, a bit lower quality of public services and similar size of NOE compared with the Scandinavian countries.

At the other extreme, there are countries such as Bulgaria, Estonia, Lithuania, Latvia and Romania. They are typically characterised by the large size of the shadow economy and the low share of proceeds from taxes and social contributions in GDP, which suggests that their situation can, to some extent, be explained by referring to the concept of **B equilibrium**. It is worth noting that irrespective of relatively low tax and social insurance contributions rates, the extent of non-tax obligations in the above countries is considerable, which is evidenced by the high regulation and low corruption perception indices as well as by low positions in the "Doing Business" ranking published by the World Bank. The general burden relating to the running of a registered business activity and hiring employees legally is large, which discourages numerous entities from operating in the official sector of the economy.

In the group of other European countries, which apart from Poland includes other countries in the CEE region, namely the Czech Republic, Hungary, Slovakia, Southern European countries – Greece, Slovenia, Italy, Portugal, Spain, and Belgium (the only representative of the western part of the continent), particular index values are close to the average levels for Europe. This group is very heterogeneous and particular countries are characterised by different combinations of the above-mentioned factors. The model proposed by Johnson et al. (1997) cannot describe the situation in these countries.

2.4. Individual factors

The decision to undertake undeclared work or employment often depends on, apart from the previously discussed factors, many other determinants which are often specific for a given individual and thus difficult to measure. The motives of particular persons for starting work in NOE may differ based on their education, labour market status or source of income. Persons with high professional qualifications and a good labour market position are relatively less likely to undertake work in NOE and in particular work that is completely unofficial. The fact of undertaking work in NOE may in such case be perceived as a professional degradation. This is so because work in the shadow economy usually consists in simple, low-skill and low-wage tasks, and for educated people even a temporary experience of this kind can have adverse effect on later attempts at finding work that matches their competences. It seems that persons with higher professional qualifications tend to conceal some of their income from undeclared activities in the official sector (e.g. working longer hours), which require the use of their qualifications and knowledge, whereas they are relatively less likely to get involved in work typical for NOE. One example of such activities is the provisions of medical services during or outside the official working hours, which generated income that can be entirely concealed from the public authorities. Persons with lower professional qualifications turn to undeclared work in NOE much more frequently than better-educated people. There is an evident overrepresentation of people with vocational secondary or lower education among all people working in the black economy (according to the LFS module – in 2004, approximately 70 per cent). Another argument is the length of employment in NOE – the average duration of work in NOE in Poland in the period from January to September 2004 for people with vocational secondary or lower education amounted to almost 37 days, whereas for persons with post-secondary or higher education – 22 days.

The decision about selecting a job in the official or informal sector of the economy may also depend on the quality and availability of labour-related social benefits that can be obtained from the employer or from the social security system after a certain defined and documented period of work in the official sector. Existing theoretical studies show that higher levels of unemployment benefits have an extensive influence on people searching and taking jobs in the official economy (see, for instance, Fugazza, Jacques 2001). In this respect the connection between eligibility for unemployment benefit, which compensates (at least partly) the income lost as a result of job loss, and the contributions paid in the past plays an important role. This means that in countries where the systems of unemployment insurance and of unemployment assistance operate side by side (e.g. Finland, Great Britain), and where certain groups of people are outside the obligation to prove a minimum period of insured work in the official sector of the economy in order to become eligible for unemployment benefit, the level of the above benefits should not affect the size of the shadow economy.

As indicated by Hanousek and Palda (2003), the impact of individual factors on the extent of tax evasion and of the shadow economy is not clear (see Box IV.3). The obtained high correlation between morality and tax evasion may result from reverse causation. A person who evades the payment of taxes may excuse his/her behaviour by stating that it does not go against his/her morals. On the other hand, a person who considers tax evasion as moral may evade the payment of taxes without any scruples. This means that the observa-

¹⁶ Higher regulations index value means greater extent of regulation. The higher the corruption perception index and the higher the "Doing Business" ranking, the smaller the extent of corruption and the more friendly the business environment.

tions of certain significant correlations between the fact of being employed in NOE or consuming goods or services generated in the shadow economy and such factors as morality or remorse does not necessarily have to imply that there is a causal relation between them.

Box IV.3. Social and individual perception of the black economy

The persistence of considerable size of black economy in particular countries is possible among others because there is a widespread acceptance of this type of activity. The fact of working within NOE often does not entail social ostracism and, what is more, the inclination of particular communities to cooperate with the authorities by reporting companies that employ unregistered workers is scarce. Consequently, undeclared work is associated with lower cost (among others, due to lower expected fines in case irregularities come to light) compared to the situation of non-acceptance of such practices. In the questionnaire survey carried out in Germany (Schneider (2006)) as many as 2/3 of respondents considered the fact of participating in the shadow economy merely as a minor offence (in German, *Kavalierdelikt*).¹⁷ Moreover, less than one in ten respondents said that those working in the shadow economy should be prosecuted and that people should inform relevant authorities about all undeclared employees that they become aware of. In addition, only approx. 5 per cent of respondents acknowledged that a person working in NOE, if caught, should be severely punished.

The impact of individual attitudes and opinions of the close environment on tax evasion was described by Hanousek and Palda (2003). The analysis of results of survey studies conducted on a sample of approx. 1,500 Czechs and Slovaks evidenced that in the case of respondents who come from circles where there is a firm disapproval of tax evasion practices, tax avoidance is rather rare. Moreover, the above research demonstrated a positive correlation between the inclination to avoid taxes and the perceived extent of this phenomenon in the closest environment. People who claimed that the degree of tax avoidance by others – both in the country and among acquaintances – is high, often failed to pay taxes themselves. Therefore, the fact that the perceived scale of the shadow economy goes down with frequency of tax evasion practices may effectively be due to moral factors. Persons convinced that only very few people in their circles avoid paying taxes are less likely to get involved in the shadow economy themselves. Notwithstanding the above, it is also possible that those who resort to fraudulent practices may excuse their own behaviour by pointing out that everybody in their environment does it.

3. Employment in the Shadow Economy in Poland

3.1. Introduction

The relatively most exhaustive source of information about undeclared work, revenues and expenditures relating to this phenomenon as well as about the social and economic features of persons who perform such work in Poland are the LFS module surveys. Until now, CSO carried out three surveys of this type: in August 1995, August 1998 and in the fourth quarter of 2004.

In the above-mentioned module surveys, undeclared work is defined as work performed in the absence of a formal employment agreement between the employer and the employee, irrespective of sector (including natural persons and individual agricultural holdings), which cannot be performed as a result of nomination, appointment or election. Undeclared work does not entitle to social insurance benefits. Employers do not deduct any taxes or SII or Labour Fund contributions and employees do not pay the personal income tax. The module surveys also took into consideration self-employment, if no relevant financial obligations towards the state are fulfilled (e.g. taxes).

In principle, module surveys involve questions pertaining to three subject groups:

- opinions about undeclared work in Poland – expressed by people performing such work, people benefiting from such work and people who know this phenomenon from observation only,
- performing undeclared work,
- using services offered by people performing undeclared work.

The module surveys cover half of the sample used in LFS, i.e. it is limited to people involved in the latter survey for the second time and people involved in LFS for the fourth (and last) time. The reason behind the above was to minimise the risk of refusal to participate in the survey.

In 1995 and 1998, the samples included approx. 11,000 households, which gave a total number of more than 25,000 people 15 years old and over. In 2004, the survey sample included approx. 9,500 households, i.e. about 23,700 people. In all three cases, the response rate was very high taking into consideration their specific subject-matter. The share of provided answers amounted to 91.2 per cent in 1998 and 88.9 per cent in 2004 (compared with the number of people from all reference groups that responded to the basic LFS questionnaire). The share of refusals to participate in the survey amounted to 1.8 and 3 per cent respectively. In the remaining cases, missing answers were due to the fact that a given respondent was not available at home when the survey was conducted (it should be

¹⁷The results of the survey indicate that the Germans perceive stealing a newspaper from the letter box as a much more serious offence.

emphasised that, as opposed to the basic questionnaire study, questions included in the module questionnaire had to be answered in person). However, preliminary data analyses demonstrated that in the case of some questions – pertaining above all to income from undeclared work and to related expenses – there is a lot of missing information, i.e. more than 20 per cent in all studies.

The estimates of the number of people involved in undeclared work, as referred to in the subsequent part of this chapter, have been supplemented with the results of the Time Use Survey (TUS). The above study allows to determine the lower limit of estimates as to the size of the shadow economy among employees and their structure in terms of some basic social and economic characteristics. The TUS was conducted by CSO between June 2003 and May 2004, using a sample of more than 25,000 people 15 years old and over (out of whom more than 20,000 completed the questionnaires and time sheets), i.e. a sample similar to that of the LFS module.

Box IV.4. LFS module survey and TUS

Due to the specific nature of the LFS module survey, the characteristics of informal workers as well as of employers offering such work is deficient and subject to significant error. Therefore, the number of people declaring to work in NOE should be treated as a minimum value of the actual extent of the shadow economy in Poland. The above results from the fact that a certain proportion of respondents could have concealed their real status in the labour market. Moreover, LFS does not cover people who live in collective accommodation establishments (lodging-houses for employees, student hostels, boarding-schools, army barracks, houses for the poor and the old, etc.) or people staying abroad for more than 2 months. Another factor that argues for a cautious interpretation of data resulting from the module survey is the fact that it refers to the first eight – or nine in the 2004 study – months of the year, and that the answers to questions included in the module questionnaire were of retrospective nature. This means that the respondents answered questions relating to past activity in NOE, which is always subject to a certain error. Moreover, the comparability of data for 2004 with data from previous periods is limited due to changes in data collection methods (observation of the reference week in the middle month of the quarter has been replaced by continuous observation) as well as changes in the base of generalising the results to the entire population as from 2003 (on the basis of the NPC 2002 data). Nevertheless, the LFS module conducted by CSO are the only such extensive research initiative pertaining to the phenomenon of undeclared work in Poland. Bearing in mind all deficiencies of this study, one can still derive therefrom some basic social and economic characteristics of informal workers, determine the lower bound of wage estimates, and establish some characteristics of shadow employers.

As opposed to the LFS module survey, TUS allows to determine the number of people working without a formal employment contract. Under Polish law, employment contracts must be in writing and, in case this written form requirement is not observed, the employer must confirm in writing all previous arrangements concerning the type and content of the agreement not later than on the day of commencement of work by the employee.¹⁸ The absence of such confirmation may suggest that the employee is engaged in undeclared work. TUS makes it possible to identify employees hired without a formal contract at the time when the survey was conducted. The above fact carries some consequences for the resulting estimates. The module survey provides a number of people who in the first 8-9 months of the year have performed work within NOE, irrespective of whether they were in undeclared employment when surveyed or not. Therefore, relevant figures should be greater for the module survey than for TUS. Although the time use survey was conducted in the course of 12 months, it allows only to identify those working without a written contract in the week preceding the survey. For instance, a person who terminates or completes work in NOE at least 8 days before the study, is not considered a person participating in NOE. On the other hand, the module survey would regard such person as engaged in the shadow economy. What is more, answers to questions about the past are in principle imprecise. In view of the above, it is possibly that a person who was employed in NOE in January, simply does not recall this fact three quarters later and denies having participated in undeclared work. If this person was examined in January as part of TUS, s/he would probably be identified as a NOE participant. One of the deficiencies of TUS is the fact that it does not enable the identification of people carrying on unregistered business activity.

In accordance with the LFS module survey of 2004, approximately 1,317 people declared that they have been involved in undeclared work in the course of three quarters of that year. This is the lowest value, compared with the previous surveys which recorded approx. 2,199 people engaged in NOE in 1995 and 1,431 people in 1998 (these values refer to the first 8 months of the year).¹⁹ This means that about 7.6 per cent of over-15-year-olds were in undeclared employment in 1995, and 4.7 per cent and 4.2 per cent in 1998 and 2004 respectively. A decreasing tendency in the number of informal workers is observable in all groups. In view of the above and taking into consideration the imperfect comparability of data for 2004 with data resulting from earlier surveys, all figures provided in the subsequent part of this subchapter are data for 2004, unless otherwise stated.

The TUS results indicate that in the second half of 2003 and in the first half of 2004 there were 764,000 employees (541,000 men and 223,000 women) on the main job in the shadow economy, which accounted for 5.1 per cent of the total employment. This number was close to that derived from the module survey, which identified 829,000 employees (505,000 men and 324,000 women) on the main job performing work in the shadow economy.

¹⁸ Moreover, the employer is under the obligation to advise the employee in writing, not later than 7 days as from the conclusion of the employment agreement, about working time, salary payment schedule, paid leavetermination notice and, if the employer is not compelled to provide work regulations – about night time (work), place and time of wage payment and the adopted methods of clocking in, confirming attendance at work and excusing absences.

¹⁹ It is not possible to determine the number of people working in the shadow economy in particular months (due to the fact that some people undertook undeclared employment a couple of times). Therefore, the figures provided in the subsequent parts of this subchapter relate only to the first eight months of 1994 and 1998 and to the first nine months of 2004.

3.2. Motives for undertaking undeclared work according to LFS module survey

In the LFS module survey, questions about undertaking undeclared work were directed to all respondents, irrespective of whether a given person participated in undeclared work or not, or whether a given household benefited from such work. Opinions on motives for undertaking undeclared work did not differ considerably between people involved in NOE and persons who have never had anything to do with it. Hence, information provided in the subsequent part of this chapter refer to the entire population.

In the years 1995 and 1998, among the most commonly indicated reasons for undertaking undeclared work there were **insufficient income** and **lack of job opportunities**, **taxation of income**, and **higher wage offers from employers**. In total, in 1995 and in 1998, these factors accounted for 78.5 per cent of all responses. In 2004, the respondents also pointed to the above causes, however, in a different frequency order positions. In 2004, the most common motive for undertaking undeclared work was the lack of job opportunities. Most probably this was a reflection of the difficult situation in the Polish labour market at the beginning of this decade. What is more, in 2004, the answer patterns for two factors changed, namely for the amount of taxes and social insurance contributions. In 1995 and 1998, the respondents tended to point to high taxes as a motivation to conceal income (13.3 and 10.9 per cent respectively) and slightly less frequently to high social insurance contributions (8.8 and 9.4 per cent respectively). In 2004, the frequency order position for the above two factors was reversed. The respondents pointed to high social insurance contributions (12 per cent) more frequently than to high taxes (7.5 per cent). This shift can be attributed to the switch from net to a gross earnings concept which took place in 1999 and which consisted in dividing the payment of the mandatory social insurance contribution between the employer and the employee and in increasing the employee's gross wage accordingly. Although this mechanism did not result in increased net wages, it was of considerable psychological significance. Employees, who realised that certain social insurance obligations were paid from their gross wages, could have started perceiving these obligations as an additional and heavy burden, which, in accordance with their subjective perception lowered their potential net wage.

Table IV.4.

Motives for undertaking undeclared work in Poland (percentage share of all answers)²⁰

Motives	1995	1998	2004
insufficient income	34.7	33.6	26.5
lack of job opportunities	21.5	23.3	36.0
taxes discouraging to declare income	13.3	10.9	7.5
employer offers higher wages on condition that work is undeclared	8.9	10.6	10.3
high social insurance contributions	8.8	9.4	12.0
potential loss of some benefits in the case of performing declared work	5.7	5.3	4.3
family or life situation (taking care of one's child, state of health, event in life, etc.)	4.8	4.5	3.2
reluctance to lastingly bind oneself to one work place	0.7	0.9	0.3

Source: Own calculation based on CSO 1996, CSO 1999, CSO 2005.

The results of the LFS module survey indicate that, according to the subjective judgement of employees, labour taxation does not constitute the key motive for undertaking undeclared work. In all three surveys, high taxes and high social insurance contributions accounted for approximately 19.5-22 per cent of all answers, which, in view of the possibility of selecting multiple answers, is not a considerable share. On the other hand the general presentation of other motives in the questionnaire does not allow to establish firmly whether such causes as insufficient income and the lack of employment opportunities do not result indirectly from taxation.

3.3 Undeclared work versus real status in the labour market

The construction of the module survey of 1995 and 1998 makes it possible to determine the actual labour market status of people engaged in the shadow economy in August of a given year by referring to the basic LFS survey. The above surveys included a question about the performance of undeclared work also in the month when the survey was conducted (i.e. in August) and thus it was possible to indicate the labour market status (according to the basic LFS survey) of informal workers. In 1998, approximately 60 per cent of people involved in undeclared work was classified in the basic LFS survey as employed, whereas approximately 18 per cent as unemployed. This means that approximately 5.5 per cent of the working population (according to LFS) is involved in undeclared work in the main and/or additional job. Moreover, some 14.6 per cent of the unemployed and 2.4 per cent of the economically inactive engage in work in NOE. If the number of the working unemployed and the working inactive was included in the total number of the working population, the value of the employment rate would increase by 1.9 pp., whereas the unemployment rate would decrease by 1.7 pp.

²⁰ The values for particular years may not add up to 100 per cent because refusals to answers and other answers were left out.

In 2004, the module survey was carried out in the fourth quarter and the questions pertaining to undeclared work referred to the first three quarters of the year. In view of the above, it is very difficult to firmly establish the labour market status of people engaged in undeclared work. This is so because flows between different status groups (in particular age and education groups) of the respondents should also be taken into account. Leaving these flows aside, in 2004, approximately 50 per cent of informal workers were classified in the basic LFS survey as working people, 30 per cent – as unemployed, and 20 per cent – as economically inactive. The above values reflect the situation in the labour market as of the fourth quarter of 2004, i.e. not at the time when undeclared work was performed. In view of the aforementioned, the values are only approximate and they may differ considerably from the actual labour market status of those involved in undeclared work at the time of its actual performance.

3.4. Characteristics of people involved in undeclared work by age

In 2004, according to the LFS module survey, an average of 4.2 per cent of over-15-year-olds was involved in undeclared work. Most frequently, this type of work is performed by people at the age of the highest participation rates i.e. those aged 25-44. In 1995, these people constituted more than half of all people engaged in undeclared work. This share was declining in the subsequent surveys and in 2004 it reached the level of 46 per cent. Marginal involvement in undeclared work can be observed among the elderly (aged 60+), which reflects the generally very low participation in this age group.²¹

The level of involvement of young people (aged 15-24) in undeclared work is considerable. In 2004, this group accounted for more than 20 per cent of all people declaring their participation in undeclared work as well as 4.8 per cent of the total population in this age group. Interestingly enough young people undertake undeclared work relatively more frequently than older people (at the age of 45 and more). As for the official sector of the economy, it is young people who have lower employment rates compared with older people, whereas in NOE these rates are the same or higher for the young.

Table IV.5.

Structure of the population of informal workers by age (percentages)

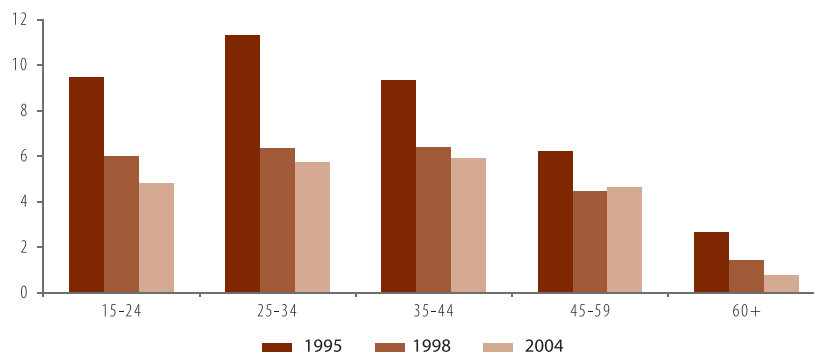
age	1995	1998	2004
15-24	22.4	23.1	20.5
25-34	25.5	22.2	24.4
35-44	26.9	26.8	22.0
45-59	17.6	21.4	29.2
60+	7.6	6.4	3.9

Source: Own calculations based on CSO 1996, CSO 1999, CSO 2005.

The highest shadow employment rate²² was recorded in 1995 and it amounted to 7.6 per cent. In the subsequent survey periods, it was declining until it reached the level of 4.2 per cent in 2004. This tendency is typical for all age groups, apart from people aged 45-59. As presented in Chart IV.3., the latter group is the only group which saw a (slight) increase in the above-mentioned indicator compared with 1998. In absolute terms, it is also the only group where the number of people declaring their involvement in the shadow economy had not changed significantly compared with 1995.

Chart IV.3.

Shadow employment rate by age groups in 1995, 1998 and 2004 (percentages)



Source: Own calculations based on CSO 1996, CSO 1999, CSO 2005.

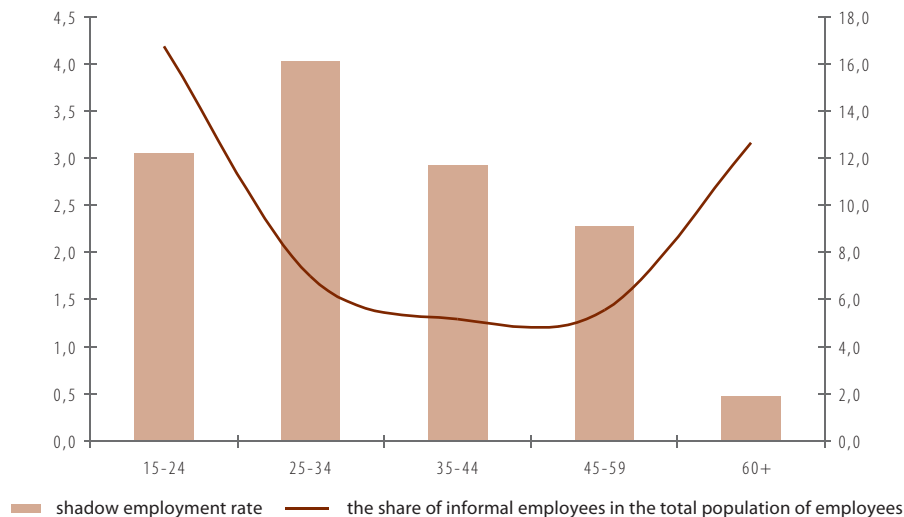
²¹ In 1995, the participation rate for over-60-year-olds was at the level of 16 per cent and it decreased to 9 per cent in 2004.

²² Shadow employment rate represents persons in shadow employment as a percentage of the total population.

The TUS results provide a similar age characteristics of employees working in the shadow economy. Undeclared employment constitutes the largest problem in the youngest age group. Although the share of people aged 15-24 involved in the black economy in the total number of informal employees is smaller than that of people aged 25-34, however, the smaller share of the former group is due to lower probability of participation and engagement in work in general. In the age group 15-24, approximately 16.7 per cent of employees used to work without a written employment contract, compared with 7.2 per cent for the total population. About a half of them were in education at that time (in the overall population of people aged 15-24 it was 77 per cent), and a quarter did tertiary education courses and postgraduate university courses.

Chart IV.4.

Shadow employment rate (left axis) and the share of informal employees in the total population of employees (right axis) by age groups (percentages)



The employment rate pertains only to employees.

Source: Own calculations based on TUS.

When entering the labour market, young people find themselves in a relatively difficult situation compared with the rest of the population. It can be observed that in the LFS module survey of 2004 young people tended to indicate the lack of job opportunities in the official sector as the key reason for shadow employment. Difficulties in finding a job result from the lack of work experience and the unidentified level of their professional qualifications.²³ As a rule, these people, and in particular people with low qualifications, lack bargaining power in negotiations with potential employers. Moreover, average wage that employers are willing to offer to people entering the labour market is lower than the average wage in the economy.²⁴ Hence, low wages as well as employers' reluctance to employ people without prior work experience may force young people into the black economy.

Another interesting finding is that the proportion of elderly workers hired in the shadow economy in the total number of employees aged 60+ is larger than average.²⁵ This fact may result from two things: firstly, for elderly people the lack of retirement, pension and social insurances is of lesser significance than for other age groups which may regard the above as a factor that discourages from engaging in undeclared work. The elderly, who already receive old-age pension are not inclined to pay social insurance contributions and thus, they are relatively more likely to decide to undertake undeclared work. Secondly, for people who decide to retire early (and thus receive early retirement benefits) the fact of engaging in official work may result in the reduction of retirement benefits. In line with the provisions of the Act on retirement and pension benefits from the Social Insurance Fund (FUS), retirement pay is reduced, if the gross wage exceeds 70 per cent of the average wage in the economy, and suspended, if the gross wage exceeds 130 per cent of the above figure.

3.5. People involved in undeclared work by education and work type

In general, work in the shadow economy is commonly thought to be dominated by people with low professional qualifications and **low level of nominal education**. This claim is supported by the findings of the LFS module survey and of TUS. According to the module survey, approx. **70 per cent of all people declaring their participation in undeclared work are people with at most basic vocational**

²³ The analysis of the situation of young people in other EU and OECD member states proves that the rate of unemployment for young people is usually twice higher – or even more than that – than the average unemployment rate in a particular country. The situation of young people in the labour market has been discussed in greater detail in Bukowski et. al (2005).

²⁴ In October 2004, the average wage of people aged 15-24 amounted to approx. 60 per cent of the average wage in the economy. In view of the currently applicable regulations, employers can employ a young person for wage amounting to 80 per cent of the minimum wage in the first year of such person's employment (Act dated 10 October 2002 on minimum wage; Journal of Laws No. 200, item 1679, as amended). This means that in 2004 the minimum gross wage of a young person could amount to PLN 659.20, whereas the net wage to as little as PLN 497.

²⁵ In view of the rather low sample size used in the calculation of this indicator, the presented result should be treated with a degree of caution.

education. This pertains above all to men, for whom this proportion amounted to 75 per cent in 2004, thus reaching the level which was higher by almost 17 percentage points than the analogous share for women. An opposite situation can be observed in the case of people with tertiary and post-secondary education. In this group women were more likely to turn to undeclared work, which can be associated with the fact that they are statistically better educated than men. This argument is confirmed by the absence of significant differences in the levels of employment rates by gender.

Table IV.6.
Structure of the population of informal workers by level of education (percentages)

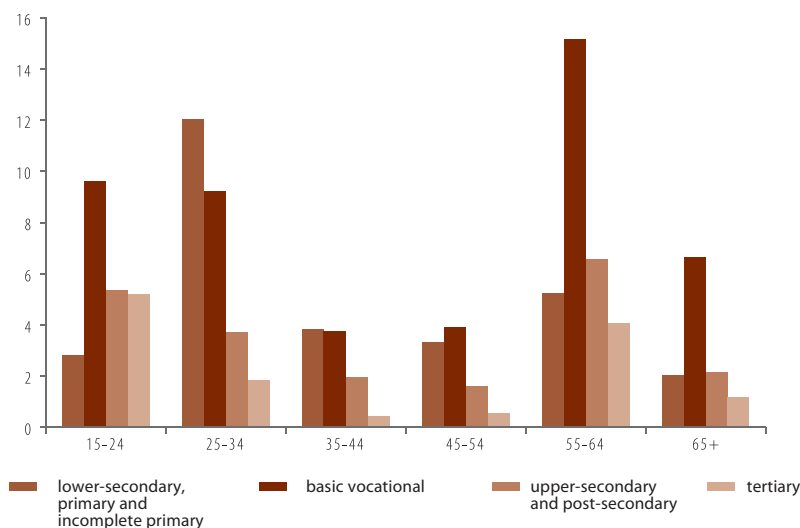
	1995	1998	2004
primary and incomplete primary	33.8	31.9	24.1
basic vocational	38.4	41.6	44.8
secondary	20.8	20.8	25.1
post-secondary and tertiary	7.0	5.7	6.0

Source: Own calculation based on CSO 1996, CSO 1999, CSO 2005.

In 2004, the shadow employment rate for people with basic vocational education amounted to 5.2 per cent. After eliminating the youngest group who are still in education, the employment rate increases slightly (by mere 0.2 percentage point). As demonstrated in Chart IV.5., the group of people with basic vocational education is typically characterised by the highest shadow employment rates.

Similar results were obtained in TUS – undeclared work is most widespread among people with low level of education. The largest group of people employed without formal employment contract consists of people with at most lower secondary education (20.7 per cent of all employees in this education group). In the group of employees with basic vocational education almost one in ten had been employed in the informal sector of the economy. It can be reasonably concluded that the higher the level of education, the lower the share of employment in the shadow economy.

Chart IV.5
Shadow employment rate in 2004 by age groups and level of education



Source: Own calculations based on CSO data.

The informal sector of the economy **demand**s above all **low-qualified work** – in all module surveys, the respondents pointed most frequently to gardening and agricultural services, construction and installation services, neighbour services, renovation and repair services. The share of people providing the above-mentioned types of services oscillated between 63 per cent (in 1995 and in 2004) and 71 per cent (in 1998). On the other hand, the share of people providing high-qualified work amounted to 6-7 per cent of all people involved in undeclared work. High-qualified work was deemed to include private tuition and translation, medical and nursing services, accounting and legal advisory services. The above services are provided almost exclusively by people with at least higher secondary education.

Table IV.7.
Frequency of informal work by type of activity in 1995, 1998, 2004 (percentages)

Details	1995	1998	2004
gardening and agricultural services	24.7	20.3	21.1
construction and installation services	14.2	19.4	11.3
neighbour services	12.9	17.3	17.2
renovation and repair services	11.4	14.5	14.3
trade	8.2	5.8	6.3
sewing services	6.7	4.4	4.0
servicing and repair of vehicles and machinery	6.4	5.3	6.3
transport services	5.2	5.2	5.2
baby-sitting and long-term care	4.3	4.5	4.6
private tuition and translation services	4.1	3.3	3.7
house-keeping (e.g. cleaning)	3.0	3.8	3.5
medical and nursing services	2.2	1.4	1.2
accounting and legal advisory services	1.1	1.3	1.4
other	12.5	12.1	13.2

Source: Own calculations based on CSO 1996, CSO 1999, CSO 2005.

It should be noted that, according to the 1995 and 1998 surveys, only people with higher secondary (vocational and general) education were engaged in all types of services examined as part of the undeclared work survey. Moreover, this group of people most frequently provided gardening and agricultural services, neighbour services, construction and installation services and were involved in trade. People with at most basic vocational education undertook above all gardening and agricultural services, neighbour services, construction and installation services as well as renovations and repair services.

3.6. Spatial diversity of undeclared work

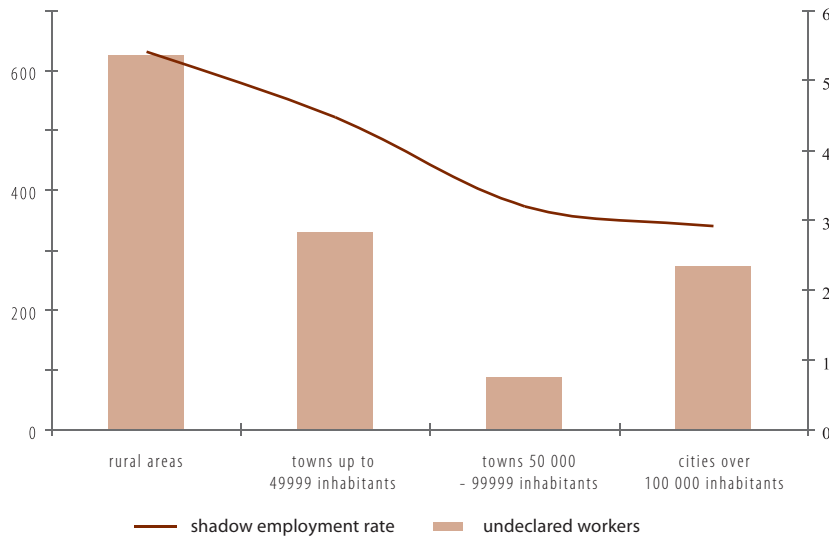
In accordance with the LFS module survey, the share of undeclared workers is similar for those living in rural areas and for those living in towns. Nevertheless, considering the degree of urbanisation of the country, it is the **population of rural areas that is more likely to engage in work in NOE**. This relationship is valid for any age, gender, or education group. The above argument is reflected in the frequency of undertaking gardening and agricultural tasks by people working in the shadow economy. As indicated in the previous subchapter, in all three surveys the share of this work category was the largest. Moreover, the LFS module survey of 2004 allows to identify types of work performed as part of neighbour services. As for neighbour services, gardening and agricultural tasks dominated this category with a great majority share of more than 62 per cent, thus increasing the total share of all people engaging in this type of activity within NOE to 31.8 per cent.

The size of the place of residence is a variable that is of smaller importance than age or level of education when it comes to explaining propensity to work in NOE. In 2004, participation in the shadow economy was least popular in medium-size towns (50,000-99,999 inhabitants). Undeclared work attracted above all the inhabitants of rural areas and of small towns (up to 50,000 inhabitants) – in 2004, almost 73 per cent of all people involved in NOE came from these areas. What is more, rural areas and small towns saw the highest shadow employment rates which amounted to 5.4 and 4.5 per cent respectively.

The TUS results suggest that shadow employment rates (without self-employed) vary even less with the size of the place of residence. The largest extent of unregistered work can be observed in rural areas. One out of ten employees living in a rural area had been employed without a formal contract, whereas in large cities (more than 500,000) the share of NOE amounted to 6.8 per cent (similar results were obtained for other towns).

Chart IV.6.

People engaged in unregistered work – left axis (thousands) and the shadow employment rate – right axis (percentages) by size of the place of residence in 2004



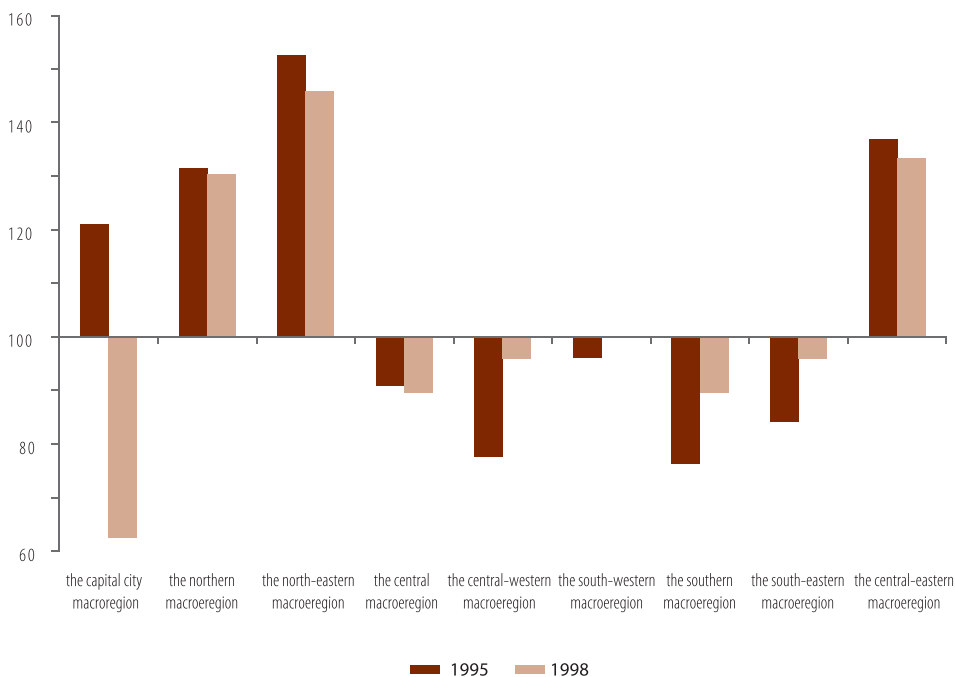
Source: Own calculations based on CSO data.

Greater concentration of black economy in rural areas may have to do with two factors, namely higher participation of people living in rural areas in the official economy and the nature of performed work, including above all low-qualification tasks. In 2004, 48 per cent of all people living in rural areas provided gardening and agricultural services, including neighbour services.

The results of the module survey on undeclared work of 2004 do not allow to determine the degree of regional differentiation in unregistered work intensity. In earlier surveys, spatial diversity of undeclared work was presented at the level of macroregions.²⁶

Chart IV.7.

Relation between shadow employment rates in NOE in particular macroregions and the overall shadow employment rate in NOE for Poland (percentages)



Source: Own calculations base on CSO 1996, CSO 1999.

²⁶ It should be borne in mind that the first two surveys were conducted at the time when the territorial division of the country into 49 voivodeships was still in place. In view of the above, the regional analysis of involvement in undeclared work has been presented for 9 (1995) and 10 (1998) macroregions. Data derived from the 2004 survey have not been included in the regional analysis.

According to both surveys, the **greatest concentration of unregistered work**, as presented in Chart IV.7., was recorded in the **voivodeships of northern and north-eastern Poland** and pertained to the following macroregions: north-eastern, central-eastern and northern (in 1998 divided into northern and north-western macroregions).²⁷ Moreover, in 1995, above-average concentration of unregistered work was observed in the capital and its surrounding areas.

3.7. People involved in the shadow economy by occupation and economic activity

Considering the types of work performed in NOE as well as the level of education of people engaging in their performance, it can be reasonably assumed that a **considerable proportion of people work in occupations that do not require high professional qualifications**. The analysis of data from the LFS module survey indicates that in 2004 approx. 85 per cent of people involved in unregistered work, who were classified as employed in the basic LFS survey, worked in the following groups of occupations:

- service workers and shop and market sales workers,
- skilled agricultural and fishery workers,
- craft and related trades workers,
- plant and machine operators and assemblers,
- elementary occupations.

The above estimate is incomplete and therefore it mirrors only the nature and not the scale of the phenomenon. This is so because it only refers to working people, who are asked in the basic LFS survey about their occupations. Moreover, this information refers to the IV quarter of 2004, whereas the questions about unregistered work included in the module survey refer to quarters I-III of the year. Therefore, a more precise description of the structure of unregistered work by occupation could be generated from individual data after taking into account the scale of flows between labour market status groups and between large occupational groups.

As opposed to the LFS module survey, TUS enables to establish a more precise description of the occupational profile of people working without formal employment contracts. The analysis of data indicates that the problem of unregistered work touches above all low-qualification manual workers, whereas it is less significant in the case of people with higher qualifications (specialists), people involved in office work, and it is virtually non-existent in the case of people in managerial positions. According to TUS, the share of the above-mentioned groups in the total number of people working in the black economy amounted by nearly 90 per cent, i.e. it reached the level similar to that resulting from the LFS module survey. In the period from June 2003 to May 2004, craft and related trades workers, with **construction workers** constituting the majority,²⁸ accounted for approx. 1/3 of all people working in the clandestine economy. Elementary occupations constituted another large group, including **mining and construction labourers**, who accounted for 30 per cent of the group population (it is highly probable that, in view of the small extent of black economy in mining, this group mainly consists of construction workers²⁹), **agricultural labourers** (27 per cent), **domestic and related helpers, cleaners and launderers** (18 per cent). Moreover, service and sales workers were also numerous in terms of involvement in unregistered work. Drivers of motor vehicles accounted for 60 per cent of all informally employed plant and machine operators and assemblers.

The share of informal employees was largest in elementary occupations. It should be emphasised that people involved in NOE accounted for more than a half of all mining and construction labourers as well as agricultural labourers. In the group of craft and related trades workers, approximately one in ten employees did not have a formal employment contract. In the case of extraction and building trades workers, this share amounted to approx. 25 per cent. In the group including service and sales workers, the highest share of people working in NOE was recorded for personal care workers (21 per cent), whereas only 5.5 per cent of all car drivers worked in the shadow economy.

²⁷ The capital city macroregion covers the following former voivodeships: ciechanowski, ostrołęcki, radomski, siedlecki, warszawski; the north-eastern macroregion: białostocki, łomżyński, olsztyński, suwalski, the northern macroregion: elbląski, gdański, słupski, the north-western macroregion: gorzowski, koszaliński, szczeciński, the southern macroregion: bielski, częstochowski, katowicki, opolski, the south-eastern macroregion: kielecki, krakowski, krośnieński, nowosądecki, przemyski, rzeszowski, tarnobrzeski, tarnowski, the central-eastern macroregion: białkopodlaski, chełmski, lubelski, zamojski, the central macroregion: łódzki, piotrkowski, plocki, sieradzki, skierniewicki, the central-western macroregion: bydgoski, kaliski, koniński, leszczyński, pilski, poznański, toruński, wrocławski, the south-western macroregion: jeleniogórski, legnicki, wałbrzyski, wrocławski, zielonogórski. In 1995, the northern and north-western macroregions constituted one macroregion, namely the northern macroregion.

²⁸ Other professions that were relatively well-represented were wood treaters (11 per cent), mechanics (7.5 per cent), people employed in the textile industry and in apparel production (6.4 per cent).

²⁹ The ratio of the number of employees in NOE in the mining sector to the number of people employed illegally in the construction sector is 1:7.

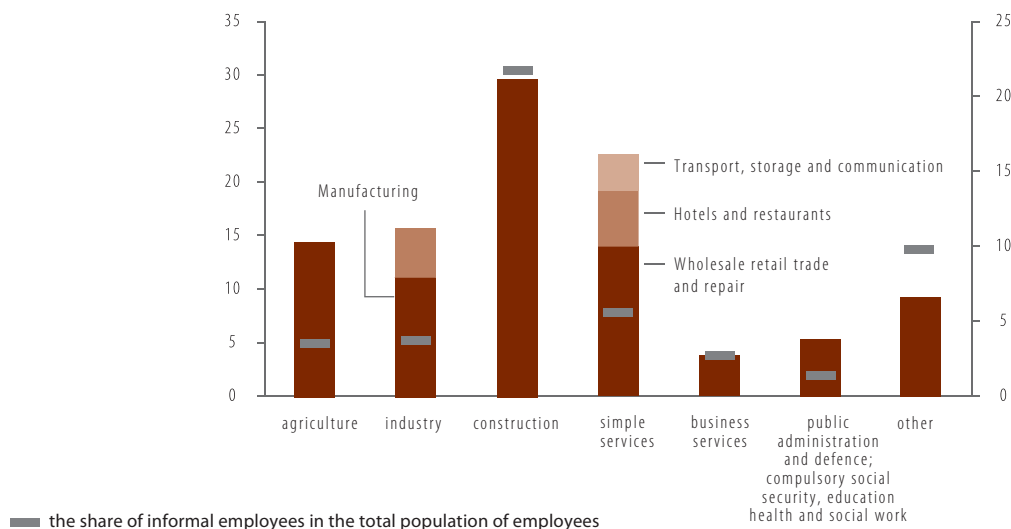
Table IV.8.
Structure of the population of informal workers by occupation.

Occupation group	Share in the number of people working in the black economy	Share in the number of people in a given occupation
professionals	2.9	1.3
technicians and associate professionals	4.5	1.9
clerks	2.3	1.6
service workers and shop and market sales workers	15.8	6.9
workers	4.9	1.2
skilled agricultural and fishery workers	35.5	11.0
craft and related trades workers	6.2	3.7
plant and machine operators and assemblers elementary occupations	27.2	19.0

Source: Own calculations based on TUS data.

The type of performed unregistered work points indirectly to sectors where it is performed most frequently. According to TUS, the largest group of people involved in undeclared work consisted of those employed in the **construction sector** and in the **simple services sector**.³⁰ Their share in the total number of people involved in NOE amounted to 29.5 and 22.4 per cent respectively. It should be noted that in the construction sector, more than **one in five employees ended up working in the shadow economy**.³¹ As for simple services, the share of people working without a formal contract amounted to 5.6 per cent.³² What is more, a considerable proportion of people engaged in unregistered work were employed in agriculture (14.3 per cent) and in industry (15.6 per cent), where the latter included above all workers in manufacturing.³³

Chart IV.8.
Structure of the population of informal employees (percentages) (left axis) and the share of informal employees (percentages) (right axis) by economic activity



Source: Own calculations based on TUS data.

The problem of unregistered work largely touches **people working part-time**. About 54 per cent out of all employees working without a formal employment contract performed part-time work, whereas this share in the overall population of employees amounted to 12 per cent. The share of people working part-time was highest for the oldest age groups (55+), where it amounted to approx. 90 per cent, and the lowest for the age group 25-34 (37.7 per cent). For young people aged 15-24, this share reached 57.7 per cent. One in three part-time employees worked in the black economy.

³⁰ NACE branches G to I.

³¹ This percentage share was the highest in the 15-24 age group (34.5 per cent).

³² The highest share of unregistered employees was recorded in the section "Hotels and restaurants" – 14 per cent. This was mainly due to the large extent of the shadow economy among young people working in this section (35.3 per cent involved in the black economy).

³³ As for the relative significance of the shadow economy, the section "Activities of households" stood out because 34,000 of 43,000 employees in this section were involved in unregistered work (TUS data).

A considerable part of cost of legal employment is a fixed cost – invariant with work time and wage. The cost consists of time or expenses (in the case of outsourcing) relating, among others, to registering an employee with social insurance and tax authorities, and to deducting taxes and contributions. Therefore, as the number of hours worked decreases, the hourly cost of formal employment relatively increases. Hence, in the case of part-time work, motives in favour of employing workers without registering are stronger.

3.8. Work in the shadow economy in the main and additional job

From the point of view of the labour market, it is important whether work in the shadow economy constitutes the principal economic activity or whether it is treated as additional one and it does not constitute the principal source of income or of a considerable part thereof. The LFS module survey allows to determine the nature of the recently undertaken unregistered work, its frequency and duration.

In accordance with the LFS module survey, in 1995 and 1998, the nature of unregistered work was above all additional. In those years, respectively 56.5 and 53.7 per cent of respondents combined unregistered employment with legal employment. In 2004, only 37 per cent of respondents declaring participation in the black economy considered their undeclared work additional. This means that in 2004 **for a majority of people involved in the black economy unregistered work was the main job**. This is supported by the fact that in 2004, as opposed to the previous surveys, unregistered work was delivered once a month. In 1995 and 1998, approximately 65–66 per cent of people engaged in undeclared work a number of times every month, in 2004, this share decreased to 3.8 per cent. The two above-mentioned processes were accompanied by an extension of an average duration of unregistered jobs during the surveyed period (eight/nine months) from 20 days in 1995 and 24 days in 1998 to 35 days in 2004. In the period 1995–2004, the number of people engaging in undeclared work for a period longer than 60 days almost trebled. The above-mentioned changes could have been due to the general situation in the Polish labour market at the beginning of the 21st century. Harsh labour market conditions which manifested themselves in very high unemployment rates as well as in considerable difficulties in finding employment could not have been without any impact on the nature of unregistered work. What is more, this situation could have caused a proportion of people experiencing problems with finding an official job to undertake permanent unregistered work. In 2004, the most commonly cited motive for engaging in unregistered work was exactly the lack of job opportunities. The share of answers pointing this cause increased by approx. 10 percentage points compared with the earlier surveys. Moreover, during this period, employment in the shadow economy lost the typical features of this form of economic activity, namely short period of work, occasionality and impermanence of the work relationship. As demonstrated in Box IV.5, **undeclared work may be procyclical**. Therefore the economic slowdown of the beginning of this century with all its consequences in the labour market was reflected in increased stability of unregistered work. Moreover, the slump in employment levels in the official sector of the economy translated into the decrease in shadow employment. Although the data collection period was extended in 2004 from eight to nine months, the number of people declaring their participation in unregistered work went down by approx. 8 per cent compared with 1998.

For women and town dwellers, unregistered work was more frequently the main job. Women, who are statistically less likely to engage in unregistered work than men, tend not to combine it with registered employment. A similar situation occurs in the case of town dwellers for whom – according to all surveys – unregistered work was above all their main job (only in 1995, the share of informal workers in the main job amounted to 50 per cent). This means that **although men and people from rural areas are characterised by higher probability of shadow employment, in their case unregistered work typically constitutes an additional job which provides extra income on top of income from official employment**.

Unregistered work as the main job is a typical form of employment for young people. In the 2004 module survey, approx. 78 per cent of the young population engaged in unregistered work pointed to this form of employment. Considering that the employment rate in the official sector of the economy is low (in 2004, it amounted to 20 per cent), it can be assumed that the exclusive engagement in undeclared work is widespread in this group. In accordance with the basic LFS survey, in 2004, the share of young people engaged in unregistered work on the main job in the total working population amounted to 19.3 per cent. For older age groups, this indicator came to approx. 5 percent.³⁴

Similarly to age, the probability of engaging in unregistered work on the main job also varies with the level of education. In fact, the higher the level of education, the more often unregistered work is an additional occupation. In 2004, people with tertiary and post-secondary education constituted the only group for which unregistered work was above all an additional occupation, whereas in the case of all other groups it constitutes the main job.

In accordance with TUS, there were 103,500 informal employees in an additional job and almost all of them were employed officially on the main job. Therefore, people performing an additional job without a formal employment contract constitute a separate category (from the one mentioned above) of shadow employees. The above figure is much lower than the number of people engaged in unregistered work as an additional occupation, as identified in the above-discussed module survey. Nevertheless, it should be borne in mind

³⁴ This measure reflects only an approximate scale of the phenomenon because a proportion of people involved in undeclared work – also in the main job – is classified in the basic LFS survey as employed, which results in referring to the same people in the denominator and in the numerator.

that the questions included in the module survey asked about the fact of involvement in NOE throughout the period of eight/nine months, whereas TUS asked about the fact of performing an additional job at the time of the survey. Moreover, in TUS, the group of people performing an additional job is strongly underrepresented. In TUS it includes 337,000 people, whereas only in the 1st quarter of 2004, LFS identified more than three times more people belonging to this group.³⁵

Box IV.5. Undeclared work and the business cycle in Italy

When analysing the role of the shadow economy in the economy, the question of the cyclical nature of NOE can hardly be neglected. One significant drawback in the empirical verification of the hypothesis about the acyclical, anticyclical or procyclical nature of unregistered employment is the absence of sufficiently long and reliable time series. Italy is an exception in the above respect as the Italian statistical office – ISTAT – published data on the extent of employment in NOE throughout a period of more than 20 years (1980-2002). These statistics were used, for instance, by Bovi (2006) who conducted an econometric study on changes in unregistered employment in the course of an economic cycle in Italy. Although due to the low frequency of available data as well as modest sample size the results of this study should be treated with a certain caution, it surely allows to form some view on the nature of NOE.

In his article, Bovi divides labour into three components: registered workers, self-employed workers and unregistered workers, and then he examines the correlation between the above-mentioned aggregates and the size of the GDP gap in Italy.³⁶ The key conclusions from the study are as follows:

- **shadow employment is procyclical** and there is a instantaneous causality between the GDP gap and unregistered work (however, there is no Granger causality);
- **number of employees in the official sector behaves in a procyclical manner** but its adjustment to the GDP gap occurs with a delay that exceeds one year (Granger causality from GDP to official employment);
- **no clear correlation between the number of self-employed and the GDP gap in the course of an economic cycle.**

There is no rigidity connected with the adjustment of the number of employees and the amount of hours worked in the unofficial economy. Therefore companies may react immediately to the improving (deteriorating) economic conditions with an increase (decrease) in undeclared employment. Moreover, in view of the repressive measures undertaken by the state, there exists a certain limit to the increase in unregistered employment. Thus, the number of people engaged in the shadow economy increases until it reaches a certain level and then remains relatively stable. Hence, there is no correlation between the shadow economy and the lagged GDP gap. On the other hand, the fact of employing a worker on the basis of a formal contract incurs much greater cost, whereas the fact of dismissing a worker may necessitate the payment of a considerable severance pay. Therefore, when making decisions on hiring a worker, enterprises that go for registered work are bound to take into account – to a much greater extent than companies operating in NOE – the future size of the GDP gap. It is only after they establish that the economic revival is of a lasting nature, and thus that the expected demand for goods and services can be reasonably assumed to remain high, that they may want to increase employment. As for self-employment, it is similar to work in the shadow economy because the cost of employment partly shifts to the employee (among others, the cost of time spent on registering a business activity as well as calculating and deducting taxes and social insurance contributions) and there is no severance pay obligation with respect to dismissed employees. The acyclical nature of self-employment, as demonstrated by Bovi, may be due to the fact that unregistered work assumes the role of this form of employment as an instrument that enables an immediate adjustment of the labour input in response to economic shocks.

As opposed to the module survey, TUS makes it possible to describe the characteristics of the group of people who undertake additional employment in NOE and to compare it with other employees who decide to engage in additional work. One in three people performing an additional job did not have a formal employment contract. Men accounted for approximately 2/3 of people engaged in unregistered work (exactly the same result was derived from the module survey). The largest share of people working without formal contract in the total population of people performing an additional job can be observed in the youngest population where it amounted to 75 per cent. This is reflected also in the high value of this share for people with at most lower secondary education. People with tertiary and post-secondary education also make up a large group of people with an additional job in NOE, which is a consequence of greater inclination of better-educated people towards taking up additional jobs. The reason for this is that for better-educated people the price of leisure is higher than for worse-educated people, and that the former dispose of a wider range of skills that they can offer. Another reason for this state of things is that people of this profile are overrepresented in the TUS sample. The share of people working in NOE in the total number of the population performing an additional job in this group does not exceed 16 per cent which is much lower than the average for the total population of people working multiple jobs. Thus, similarly to shadow employees on the main job, it can be stated that the problem of employment in NOE affects well-educated people only marginally.

³⁵ Moreover, the fact of underrepresentation of this group may distort the results. If it was not random, e.g. if there was a greater probability of not including young people who perform an additional job in the TUS sample, the statistics and sampling distributions presented below would be biased estimators of the statistics and distributions in the population. With TUS, we might actually be facing this sort of problem. This is so because compared with LFS, the share of people with university degrees in the total number of people performing an additional job is higher by approx. 15 percentage points. This finding has been taken into account when analysing the employment structure by level of education.

³⁶ Bovi examines the presence for Granger causality and instantaneous causality (Geweke test) using bivariate VAR analysis (labour input component, GDP gap).

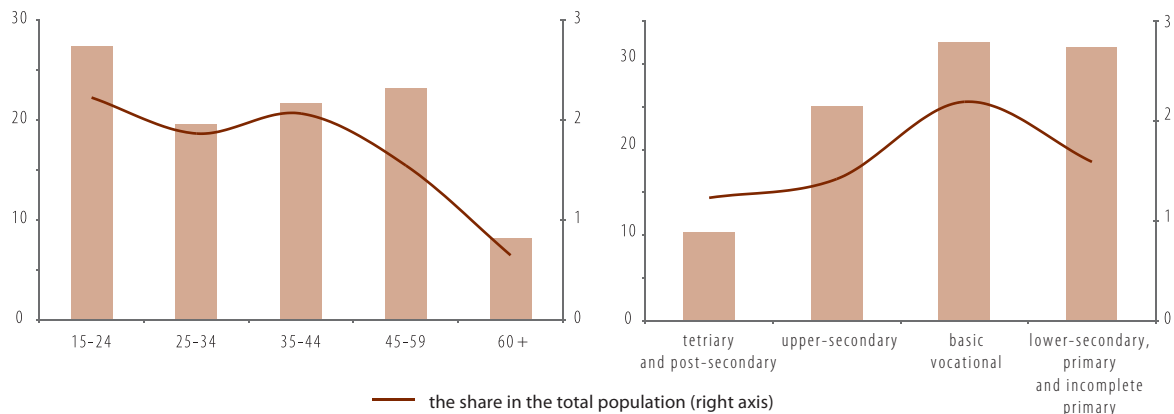
Box IV.6. Paid assistance

Apart from employees involved in regular unregistered work, TUS allows also to identify people who provide other household with small services for a consideration. With a degree of certainty, we can establish that such activities are usually unregistered due to low profitability. Moreover, the probability of such activities being detected by tax or control authorities is low.

Within the four weeks preceding the survey, 506,000 people provided small services to other households in return for a consideration. What is more, for one person in four it had been one-time assistance, whereas for more than a half such assistance had been provided on average less frequently than once a week. Only 17 per cent of the above group had been providing such services on average more frequently than twice a week. Thus, the performance of this type of work is above all of casual nature. The structure of the discussed group by gender, age and level of education is very similar to the structure of NOE workers, as derived from the module survey.

Chart IV.9:

Structure of people providing small services for a consideration by age and level of education



Source: Own calculation based on TUS data.

The population of people providing small services was dominated by men (their share amounted to approx. 2/3), although, compared with women, they provided them sporadically (on average less frequently than once a week). As for types of provided services, they included above all construction and renovation services, gardening services (mainly men), baby-sitting and care for elderly or ill (mainly women), and cleaning services. At the time of the survey, people classified as employed accounted for 42 per cent of the population providing paid assistance, and the unemployed and inactive – 20 and 38 per cent respectively. Almost 1/3 of employees providing small services were employed without a formal employment contract, and they engaged mainly in construction and renovation services as well as in vehicle-related services. The examined group overlaps only to some extent with the population of informal employees, as identified in this subchapter, and the provision of small services constitutes the (additional) source of income also for those working in the official sector of the economy as well as for the unemployed and inactive.

The largest group involved in providing small services consists of young people aged 15-24. Considering the relatively small inclination of this group for any economic activity, it can be stated that, similarly to employees, the problem of participation in the black economy concerns above all those who enter the labour market for the first time. Almost 3/4 of the young population providing small services were still in school education. This fact was reflected in the high share of people with lower secondary and lower education in the population of small service providers. Another, equally numerous, group was made up of people with basic vocational education who had the highest share of small service providers of all groups. This share was similar for the group with tertiary and post-secondary education and the group with secondary education. It should be noted that in the group of people with secondary and tertiary education paid assistance was provided on a more systematic basis (the share of people providing small services on average less frequently than once a week was lower than in other groups). As for types of services provided, these people are likely to engage in baby-sitting and private tuition, i.e. tasks which in principle are not incidental. Although people aged 60+ constitute the least numerous group when it comes to providing small services, this form of money-making is in their case of greater importance than in the case of people aged 25-59. The elderly exhibit a marginal inclination towards taking up any job and if they nevertheless do engage in employment, they tend to opt for the provision of small services for a consideration.

3.9. Income from work in the shadow economy

It is very difficult to make judgements about wages of informal employees. All attempts at comparing the average wage in the official and black economies provide a rather distorted picture due to different sectoral structures of these two parts of the economy and what comes with it due to different structures in terms of occupation and level of education. As mentioned above, people employed in NOE are usually low-qualified which is the reason for the average wage in NOE being generally lower. Moreover, any comparison of wages between people with the same level of education and belonging to the same occupational group (at the second level of desag-

gregation), taking into account number of hours worked, is bound to lead to the conclusion that net wages in the official economy are slightly higher than in NOE. The more the analysed groups are alike in terms of occupational structure and education, the smaller the difference in average wage. The main reason for this is that people involved in unregistered work have more motivation to understate their income. This claim is supported by the low amounts of income declared in the LFS module survey. Moreover, shadow workers who are well paid tend to either avoid providing information about their income or conceal some of it, thus lowering the estimates for relevant average values in the population. What is more, it is scarcely probable for such a large proportion of people to declare their readiness to work in NOE for a net pay which does not exceed that of a person working in the same profession and having the same level of education in the official economy. If net wages are identical in the two sectors, it is more beneficial for employees to undertake work on the basis of a formal employment contract because they not only get the same wage but they also acquire the right to social insurance. Notwithstanding the above, the ratio of the average wage for unregistered work to the average wage in the official economy or the minimum wage allows to compare the purchasing power of income from unregistered work for particular years.

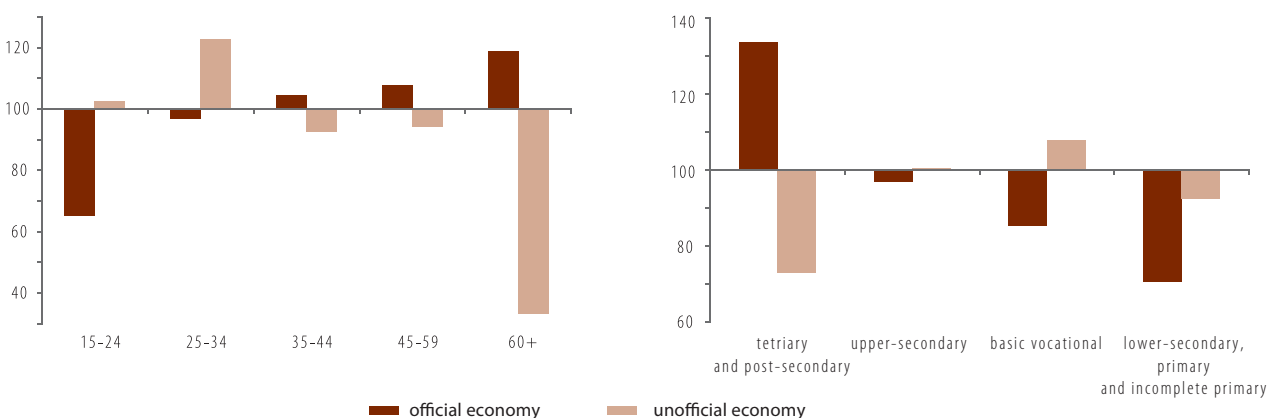
The LFS module survey on undeclared work makes it possible to determine the **lower bound of estimates for income** derived from undeclared employment and it is the only survey which allows to observe how these values evolved in time. Nonetheless, these data refer only to income from the recently performed work and they do not cover income from all jobs performed throughout the year. Moreover, the available figures are only declarations of the respondents and, as they pertain to past events, they may be subject to significant distortions.

In gross terms, between 1995 and 2004, the average income derived from unregistered work increased more than twofold from PLN 172 to PLN 392. However, if we refer these figures to the average wage in a given year, we may well observe that income from unregistered work oscillated around the level of 35-40 per cent of the net average wage, as estimated from LFS.³⁷ The average income from undeclared work amounted to 78.2 per cent of the net minimum wage in 1995, 68.1 per cent in 1998 and 65.1 per cent in 2004. These figures were a consequence of a more rapid growth of the real minimum wage in relation to real income from unregistered work.

The average wage for unregistered work, similarly to the official sector, is lower for women than it is for men. For women, this amount oscillated around the level of 35 per cent of the average wage obtained by women in the official sector, whereas for men it amounted to more than 41 per cent. This means that gender pay gap in NOE is greater than in the official economy. In the official sector, the average wage for women in October 2004 amounted to approx. 83.6 per cent of that for men, whereas the average income derived by women from undeclared work in 2004 constituted merely 80 per cent of the average income for men. Moreover, women worked on average one day longer than men and this fact affected the statistics to the extent that the amount of daily pay for women came to PLN 9.38, compared with PLN 12.10 for men. Similar conclusions can be drawn from the analysis of wages presented by TUS.

Apart from gender, age and education affect the amount of income derived from unregistered work. As demonstrated in Chart IV.10, the structure of the average wage for unregistered work by age and education differs greatly from an analogous structure in the official economy.

Chart IV.10.
Wage indicator for people working in the official and informal economy by age and education in 2004 (percentages)



100 per cent refers to the average wage in the shadow economy and in the official economy.

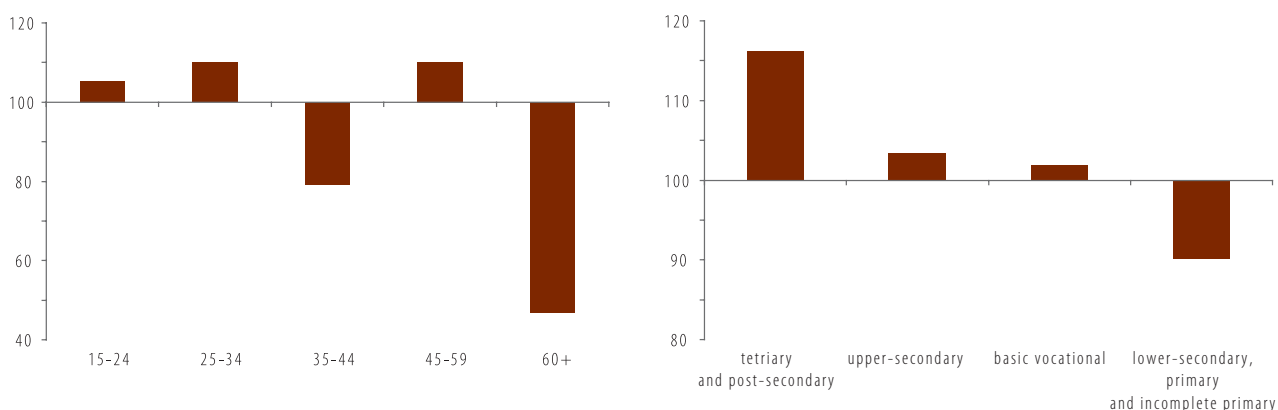
Source: Own calculation based of LFS data and CSO 2005.

³⁷ According to LFS, wages are values declared by the respondents and therefore the reliability of the indicated absolute values of net wages is limited. However, information about income derived from unregistered work is collected in the same manner. In view of the above, it can be assumed that the deficiencies of the presented measures are of similar nature and therefore that the comparison of the two wage levels is in fact more appropriate than any references to values worked out in the average wage estimates and based on other sources.

Particularly large differences in terms of the average wage/income are typical for the “extreme” age groups, i.e. 15-24 and 60+. Generally, it is younger people who receive higher wages for their work in the shadow economy, whereas in the official economy the situation is exactly the opposite. The above may stem from the fact that almost 78 per cent of the young population engage in unregistered work as their main job which means that their income is higher compared with income derived from additional work. Moreover, the share of people earning more than PLN 400 per month in this age group was the largest (more than 30 per cent). When it comes to the level of education, it can be observed that in the young population – more frequently than in the other age groups – undeclared work is performed by people with secondary and post-secondary education. This may mean that students who wish to earn some extra money, make up a considerable proportion of the young population (aged 15-24) engaged in NOE.³⁸ The average income for unregistered work received by the elderly (aged 60+) amounts to as little as 30 per cent of the average income derived from unregistered work, whereas in the official sector they typically receive wages that are much higher than the average. Such large differences in the relation of average income derived from work in particular age groups to the average income in the official and informal sector of the economy are probably connected with different profiles of people performing work in the two sectors. Over-60-year-olds involved in work in the official economy are usually men, out of whom 25 per cent have tertiary education. Wages offered to people from this group in the official economy are the highest. Elderly people participating in unregistered work are usually women who engage in work sporadically.

The relationship between income from work and education is different in the official and inofficial economy. In NOE, the highest income is obtained by people with basic vocational education and in fact this is the only group the income of which is higher than the average income derived from unregistered work. As for people with secondary education, the average income from unregistered work is very similar to the average income. The largest differences in relative average income levels derived from work in NOE and in the official economy concerned people with tertiary and post-secondary education. For this group, the average income from unregistered work was considerably lower than the average income in the informal economy, whereas in the official economy this group enjoys the highest wages. However, taking into consideration the average time of work in the shadow economy, i.e. the average daily income from unregistered work, the above patterns change, which is demonstrated in Chart IV.11.

Chart IV.11.
Indicator of daily income derived from undeclared work by age and education in 2004 (percentages)



100 per cent refers to the average amount of wage in the shadow economy.

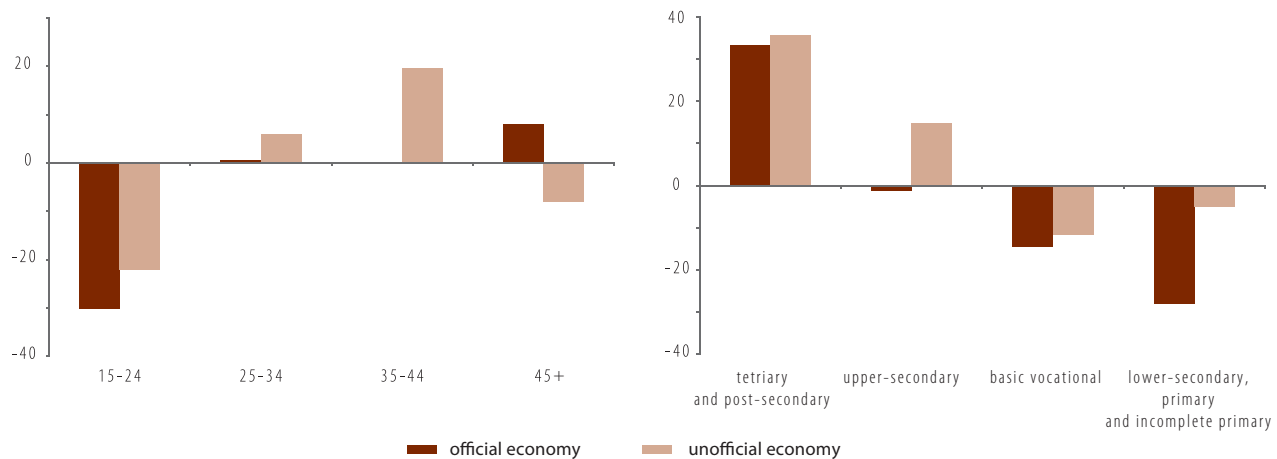
Source: Own calculations based on CSO 2005.

Having taken the average work time of particular groups into account, the relative average income by age did not change significantly. Only in the case of people aged 45-59, the average daily income turned out to be higher than the average for the total population, which is probably due to a much lower average number of days worked in the shadow economy compared with younger age groups (30 days compared with 39 days for people aged 25-34). Much greater differences may be observed in the case of division into education groups. If we consider the average time of work in NOE, it turns out that people with the highest level of education attain the average daily wage which is much higher than for other groups. In 2004, people with post-secondary and tertiary education worked on average about 22 days, whereas people with basic vocational – 37 days. Therefore, **similarly to the official economy, there is a strong relationship between wage and nominal level of education in the shadow economy.**

³⁸ Moreover, compared with other age groups, young people were more eager to provide information about their income from unregistered work. Assuming that it was those with high income that refused to reveal such information, the average income for other age groups could be understated more heavily than the average income in 15-24 age group.

Chart IV.12.

Wage structure of full-time employees in the official and informal economy by age and education



The above chart presents percentage deviations from the average wage in the official and informal economy accordingly. The over-60-year-olds are not distinguished due to insufficient sample.

Source: Own calculations based on TUS data.

As indicated above, relatively high wages offered to young people involved in the shadow economy are probably a consequence of a different profile of performed work. The assessment of average wages of full-time employees engaging in unregistered work on the main job (TUS data) allows for a conclusion that this could be the exact reason for the occurrence of considerable differences in the wage structure by age between the shadow and official economy. The lowest wages in NOE are offered to the youngest people aged 15-24. Therefore, it can be firmly established that, similarly to the official economy, in NOE work experience constitutes a considerable determinant of wage levels.³⁹

3.10. Entities declaring demand for undeclared work

The LFS module survey on unregistered work makes it possible to determine which entities benefited from unregistered work as well as what was the resulting amount of expenses. In 2004, questions about employers in the shadow economy were directed to both entities performing work as well as to those benefiting from it. People involved in undeclared work provided a type of their last employer. The following types of units were distinguished: an individual (a household), a private company or a cooperative in the system of home work, a private company or cooperative in a system other than home work, a state or municipal company, self-employment. Separate questions were directed to households, people carrying on a business activity, company and farm owners. In this case, the questions referred to their resorting to unregistered labour within the preceding year.

People involved in NOE indicated that private individuals were the key employer category in the shadow economy. In 2004, more than 65 per cent of all unregistered workers performed work in favour of households, which constituted a decrease compared with 74 per cent in 1998. In the subsequent surveys, the share of people performing unregistered work to companies and associations was on the rise from as little as 14 per cent in 1995 to nearly 22 per cent in 2004.

In 2004, approximately 1,019,000 households benefited from undeclared work. Compared with 1995, this figure decreased by nearly a half (from 1,911,000 households). In the subsequent part of this subchapter, we present profiles of shadow employers.

When it comes to benefiting from unregistered work, it is above all employees' households (in 2004, they accounted for approx. 34.5 per cent of all households benefiting from unregistered work) as well as retirees' and pensioners' households (32.5 per cent) that resort to unregistered labour. Moreover, the above types of households are most common in the economy and, in 2004, they accounted for 40 per cent and nearly 36 per cent of all households. In the rural areas, it is mainly farmers' households and employee-farmers' households (in total, they constituted 33 per cent of all households in the country) that are most likely to employ unregistered workers. What is more, as demonstrated in Chart IV.13, the subsequent surveys proved the share of farmers' households was on the decline. This phenomenon should be attributed to the gradually decreasing share of people for whom work in their own farms was the primary source of income in the total rural population. In 1995, this share amounted to 20.6 per cent, whereas in 2004, it went down as low as 14 per cent. However, as demonstrated in Chart IV.13., only in the case of these two types of households, there was a strong overrepresentation of households which benefited from unregistered work in relation to their number in the total number of households.

³⁹ Differences in the results derived from the module survey and from TUS may arise, among others, from the fact that the former allows to determine – apart from people who declared their participation in unregistered work – income derived from such work by the unemployed and the economically inactive (according to LFS), which, in view of the low participation rate for the young population and the relatively high unemployment rate, may affect the estimation of income from unregistered work.

Chart IV.13.**Households benefiting from unregistered work by household type (percentages)**

Source: Own calculation based on data from CSO 1996, CSO 1999, CSO 2005.

Retirees' and pensioners' households tended to resort to unregistered work nearly as frequently as employees' households. In all surveys, they accounted for an average of approx. 30 per cent of all households benefiting from unregistered work. These households usually included elderly and disabled people and people whose income was much lower than the average wage in the economy. Due to their health condition, these people were more likely than other groups to benefit from small services – mostly consisting in house-keeping (e.g. cleaning, washing, etc.), neighbour services, gardening services and long-term care. It can be reasonably assumed that the key motive for avoiding registration in this respect is the desire to avoid the bureaucratic inconveniences relating to their legalisation. Moreover, low income from pensions and retirement benefits compels their recipients to minimize the cost of these services by failing to register them for tax purposes.

Work performed in favour of households used to be occasional. In 2004, its average duration came to 13 days (for urban households 16 days and for rural households – 10 days). Nevertheless, urban households spent more on the unregistered services provided to them than rural households. These differences stem from different types of work involved. Urban households were more likely to hire “well-paid unregistered workers” providing services which require certain knowledge and skill (for instance, private tuition, medical and nursing services, accounting and legal advisory services).

4. Probit-Probit Sample Selection Model

In order to fully identify the factors affecting the individual probability of undertaking work in NOE, taking into account the non-random selection to the sample of employees, a sample selection model was estimated, where both the equation describing the sample selection and the probability of undertaking work without a formal contract take the form of a probit regression. The parameter values have been estimated by ML, whereas their standard errors have been calculated using the Huber-White sandwich estimator. As the base category we have selected a married woman aged 45-54, living in a town of 20,000-50,000 people, having secondary education, who is not longer in education, who does not have any health problems and who is employed as a full-time service/sales worker in the simple services sector.

The following variables have been included in the selection equation:

- gender
- age group (15-24, 25-34, 35-44, 45-54, 55-59/64, 60/65+)
- level of education
- marital status
- size of place of residence
- school/university education
- health condition (illness, disability)
- unemployment rate in a given voivodeship.

Apart from the last one, all of the above variables have been introduced by a relevant set of dummies. The results are in line with common intuition. The probability of being employed is, among others, smaller for women, it decreases alongside decreasing level of

education and is highest for people aged 25-44. In the case of the equation describing the probability of employment in the shadow economy, we have used two different specifications. In the first one, we included occupation (broad occupational groups) and sector of the economy, where a given employee is employed, among explanatory variables. In the second one, we have adopted a different approach. We have assumed that the key factors that explain the variance of the extent of the shadow economy between different occupational groups and NACE sections are: the share of people receiving wages below the minimum cost of labour and the average company size in the official sector.

The first variable measures the proportion of people in a given occupational group (second level of disaggregation) who receive the lowest wages, i.e. equal to the minimum wage or marginally higher. It can reasonably be expected that for occupations for which this share is high, both the proportion of people who cannot undertake work due to their low level of education and the resulting low level of (potential) wages, which does not exceed the minimum cost of labour, and the proportion of companies ready to employ workers below the minimum statutory cost, are high. By way of introducing this variable, we intended to demonstrate to some extent the impact of legislation relating to the minimum wage and the tax wedge for the lowest income on individual probability of employment in the shadow economy. In view of the fact that wages are on average lower in smaller companies, the assessment of the extent of this impact can be distorted. Small companies have more possibilities in terms of concealing employment from tax and social security authorities and thus the probability of detecting unregistered employment in their case is smaller. In view of the above, we can expect that there exists a relationship between company size and the probability of engaging in NOE. Bearing this in mind, we have introduced an additional variable into the model which reflects the number of people employed in a given company. Due to the fact that the questions in TUS do not cover company size, we have used an approximation, i.e. for every employee in TUS, we assigned the average number of employees in a given NACE section (second level of disaggregation) based on individual data from the wage structure survey carried out by CSO in October 2004. This source has been also used to derive the share of people receiving wages below the minimum cost of labour.

By comparing the goodness-of-fit measures for both specifications, we can reasonably conclude that they fit the data equally well, with a slightly better result for Model 1. Although the value of likelihood function⁴⁰ for Model 2 exceeds the relevant value for the first specification, the value of R^2 argues for the choice of Model 1. The results of the Wald test for the second model indicate that the fact of including the selection equation largely affects the parameter estimates. Therefore, the non-random selection to the sample of employees may give rise to significant bias in the parameter estimates.

The estimation results for both models provide slightly different results for the shared parameters. Although in both cases the probability of employment in the shadow economy is higher for the younger population (aged 15-34), and in particular for the youngest age group of 15-24, as well as for large city dwellers and single people⁴¹, a direct inclusion of the occupational and sectoral variables in the model (Model 1) leads to different conclusions as to the role of education. In such case, it can be noted that only the fact of having a lower education (max. lower secondary) does significantly increase the tendency to undertake employment in NOE. In Model 2, in turn, differences in education seem to play a greater role, although it can also be observed that the probability of shadow employment decreases considerably for people with higher education. Similar results have been obtained for the gender variable. If the explanatory variables set explicitly accounts for occupation and type of economic activity, the probability of engaging in unregistered work is the same for women and men. Therefore, it should be acknowledged that **the occupational choice constitutes a decisive factor which shapes the tendency to engage in unregistered employment**, and that neither education nor gender play a similar role. It is only people with the lowest education that distinguish themselves with a higher probability of engaging in the shadow economy. What is more, **the significance of the sector in which a given person works is equally essential as that of the occupational choice**.

Significant parameter estimates for the youngest age groups mean that **work experience** is also one of the crucial factors that shapes the chances of undertaking work in the official economy. Firstly, young people who have not been in employment sufficiently long lack the required work experience, and therefore, even if they have relevant nominal education, they are not able to match the level of productivity typical for long-serving employees. Secondly, the qualifications of young people who enter the labour market for the first time are not easily recognised by employers because these people are not able to document the level of their productivity. What is more, the model indicates that the probability of older people (aged 55+) engaging in unregistered work is not, *ceteris paribus*, considerably greater than that for employees aged 35-54. Therefore, the observed high share of people from the above age group in NOE is essentially due to other factors, including above all their involvement in part-time work. As indicated above, elderly people are more likely to opt for part-time employment (according to TUS, 38 per cent of all employees aged 55+ worked part-time⁴²) because they usually have another source of income, namely their retirement, pension or pre-retirement benefit, and they consider their income from work mainly as a supplement to income derived from other sources. Due weak incentives to register part-time employees, a large proportion of them stay in NOE. Consequently, elderly people end up working in the shadow economy relatively more frequently.

⁴⁰ Strictly speaking, of a pseudo-likelihood function.

⁴¹ All findings described at this point should be interpreted with the *ceteris paribus* assumption in mind, i.e. assuming that all other factors are equal. For instance, a significant and positive parameter value for the single person dummy means, among others, that if there are two men with the same education, in the same age, living in the same town and working in the same profession and sector but where only one of them is married, the probability that the other man engages in the shadow economy is greater.

⁴² According to BAEL, this share amounts to 20-25 per cent.

Table IV.9.
Sample selection model estimation results

Variables	Model 1	Model 2
male	0.10	0.39***
age group 15-24	0.35***	0.32***
age group 25-34	0.31***	0.26***
age group 35-44	0.03	0.01
age group 55-60/64	-0.11	-0.16
age group 65+	0.03	0.25
single	0.33***	0.33***
tertiary education	0.07	-0.35***
post-secondary education	0.15	0.03
basic vocational education	0.08	0.28***
lower secondary or less	0.29**	0.64***
town of more than 500,000	0.23**	0.25***
town of less than 20,000	0.11	0.09
rural area	0.05	0.16**
part-time work	1.26***	1.27***
legislators, senior officials and managers, clerks	-0.58***	–
professionals, technicians and associate professionals	-0.37***	–
skilled agricultural and fishery workers	0.23	–
craft and related trades workers	0.39***	–
plant and machine operators and assemblers	-0.03	–
elementary occupations	0.42***	–
agriculture	0.85***	–
industry	-0.33***	–
construction	0.65***	–
business services	-0.48***	–
public administration and national defence, education, healthcare	-0.45***	–
other NACE sections	0.16	–
households maintained from non-earned sources	0.46**	0.52***
average number of workers in a given division (two-digit code)	–	-0.08***
share of workers receiving wage below the minimum cost of labour in a given occupational group (two-digit code)	–	1.08***
unemployment rate in a given voivodeship	0.01	0.01
constant	-2.30***	-2.19***
R ²	0.52	0.45
log-likelihood	-16205056	-16201736
Wald test for non-random sample selection (H0: bias due to non-random selection is insignificant)	do not reject H0	reject H0

Wald test at 10 per cent significance level.

(*), (**), (***) stands for significance at 10-, 5- and 1 per cent level respectively.

Source: Own calculations based on TUS data.

The parameter estimates for occupational and sectoral dummies are in line with intuition as well as with the earlier findings. For people involved in occupations that require a high level of education, i.e. professionals and technicians, the probability of ending up in the black economy is relatively lower. What is more, the highest parameter estimates were obtained for the occupational groups which **are characterised by a relatively low required level of qualification**, i.e. for craft and related trades workers and elementary occupations. As for farmers, plant and machine operators, service and sales workers they exhibit *ceteris paribus* a similar tendency to engage in employment in NOE. The analysis of the role of sector in which a given employee is hired, allows for a conclusion that the chances

of undertaking unregistered work is much greater for those involved in agriculture and construction. The probability of participation in informal work in the simple services sector is higher than in industry or in the other sectors. It is worth noting that the first three of the above-mentioned sectors are characterised by lower productivity indicators than the remaining ones.

When analysing the impact of other factors, it should be emphasised that **part-time employees** are more likely to engage in the shadow economy than other employees. The above claim is connected with the above-discussed decreasing relative advantages of unregistered work alongside the increasing work time. Moreover, there is a considerably higher probability that employees from households earning their living from non-wage sources (benefits and other allowances) engage in undeclared employment. As eligibility for benefits and allowances, as well as their amount, depends on whether a given person is formally employed or not (e.g. unemployment benefit) and on the official amount of income (social assistance), people living in households maintained from non-earned sources, including people receiving benefits or allowances, are less inclined to start work in the official sector. This is so because the fact of engaging in work on the basis of a written employment contract may entail the loss or reduction of income from benefits or allowances. As for the unemployment rate in a given voivodeship, it does not affect the probability of engagement in the shadow economy. In view of the observations presented in the previous part of this report, this finding should not be surprising. Considering the high level of aggregation, it is impossible that the unemployment rate at the voivodeship level could reflect the existing disparities among the local labour markets.

Some interesting conclusions can be derived from the second model. The probability of engagement in the shadow economy decreases with the average company size in a given division. Another significant factor is the **share of people working for a wage below the minimum cost of labour**. People who are in occupations where wages are close to the minimum wage have limited options when it comes to finding official employment and thus the probability of their participation in unregistered work is greater. The above results suggest that the currently applicable regulations on minimum wage, in view of high tax wedge for the lowest income group, may exert a considerable influence on the extent of NOE. The fact that the minimum wage is determined centrally – without any differentiation between occupations or sectors – may pose an obstacle to legal employment in low-productivity, and thus low-wage, occupations.⁴³

Table IV.10.

Comparison of conditional shadow employment probabilities for some selected profiles (Model 1)

	Profiles	Ratio of probabilities (denominator: conditional shadow employment probability for the base category*)
1	married (male) retiree with primary education, living in Wrocław, working part-time in a security company	14.9
2	single (female) university student living in Kraków, working part-time as a waitress in a restaurant	40.4
3	married man aged 35-44 with basic vocational education, living in a village in the zachodniopomorskie voivodeship, working full-time as a bricklayer at a construction site	16.8
4	single man aged 25-34 with secondary education, living in a town of less than 20,000 inhabitants in the podlaskie voivodeship, working full-time as a driver in a shipping company	6.8
5	single woman aged 55-59 with primary education, living in a town of 20,000-500,000 inhabitants in the śląskie voivodeship, working part-time as a domestic help, member of a retirees'/pensioners' household	33.1
6	married man aged 45-54 with tertiary education, living in a town of 20,000-500,000 inhabitants in the wielkopolskie voivodeship, working full-time as a health professional	0.2
7	single man aged 15-24 with basic vocational education, living in a village in the podkarpackie voivodeship, part-time employee, member of a households maintained from non-earned sources	88.4

* The mazowieckie voivodeship was adopted as a place of residence for the base category.

The income source was the same as the main source of income for the household, unless indicated otherwise.

Source: Own calculations based on TUS data.

⁴³ These findings do not constitute a firm evidence for the existence of a relationship between the minimum wage and the size of the shadow economy. They prove only that people who are in professions that are characterised by low labour productivity and thus by low wages, are more likely to engage in NOE. It can be reasonably expected that in such occupations the minimum wage constitutes a more significant obstacle to official employment.

In order to better illustrate the results of the model, we have estimated conditional shadow employment probability ratios⁴⁴ for some selected profiles and we have related them to the probability for the base category. Only in the case of the man from point 6, we can observe a lower inclination to engage in unregistered work than for the woman portrayed in the base category description. The fact that this man performed a job of a specialist working in the sector “public administration and national defence, education, healthcare” was of key importance in this case because the above constitutes a factor which largely decreases the probability of engaging in unregistered employment. It should also be noted that this probability is only approximate because the variables describing the occupational group and sector are defined at a high level of aggregation. The young man living in a village in the podkarpackie voivodeship is most likely to engage in work without a formal contract. The reason for this is that in his case we can observe most risk factors that increase such probability, namely part-time work, employment in agriculture, young age, singleness and belonging to a household for which transfers are the main source of income. As for the student from Kraków, she is much less likely to engage in NOE, although she belongs to the same age group and she also works part-time. However, as opposed to the above man, she belongs to an employees’ household. A similar probability of participation in NOE can be observed in the case of the married woman from point 5 who has a lower level of education in relation to the base category. The relative probability for the retiree from point 1 is considerably lower than for the student and similar to that of the construction worker from point 3. Compared with the remaining profiles, the married man working in a shipping company (point 4) has a relatively low probability of shifting into the shadow economy, although this probability is still higher than that for the base category. Although, similarly to the base category, he works full-time in the simple services sector but due to his young age he has little work experience, which decreases the probability of finding employment in the official economy.

To sum up, one important factor affecting the probability of engaging in undeclared work is **company size**. Smaller companies tend to more commonly hire workers without formal employment contracts. The greater the extent of the business, the more difficult it becomes to conceal such practices from the inspection authorities. Therefore, the risk of punishment increases and – what comes with it – the advantages of operating in NOE decrease. Another factor which greatly affects the probability of participation in the shadow economy is the **ratio of wages in a given occupation to the minimum wage**. The lower the average wage in a given occupational group, the greater obstacle the statutory minimum wage poses to legal employment. The negative impact of the regulations on minimum wages is further enhanced by high taxation in the lowest income group. Moreover, people who decide to **work part-time** also have greater probability of shifting into illegal employment than full-time workers. Last but not least, employment in the shadow economy tends to attract **young and single people**.

5. Impact of NOE on the Economy and Labour Market

The existence of the shadow economy is a common phenomenon and an inherent feature of all economies worldwide. However, the extent of this phenomenon in Poland is remarkable compared with those recorded in the developed countries, and in particular in a majority of EU member states. In this context a question emerges of whether the large share of NOE should be perceived as a threat to the economy or whether it is a factor which exerts a positive influence on the levels of employment, consumption and investment.

NOE is often seen as an undesirable phenomenon. The argument that labour productivity in the shadow economy is lower than in the official economy (see Johnson et al. (1997)) is often raised in order to substantiate its negative impact on the level of economic growth. This is so because enterprises operating in NOE have a limited access to capital and therefore the fact of shifting production from the official to the informal sector may result in a decrease in accumulation of capital and in average productivity in the economy. Moreover, in the face of repressive measures undertaken by the state, companies which resort to unregistered employment must incur certain costs to conceal their activity which generates pure loss because these funds are not invested in the production process (see Schneider (2003)).

On the other hand, however, high flexibility of employment in NOE as well as the scope of jobs performed (neighbour services or small scale production) within it may enhance competition and boost efficiency in entities involved in production or services of similar type as well as restrict the extent of public intervention in the economy (Enste (2002)). It is highly probable that a proportion of goods and services generated in the shadow economy would not have been otherwise generated in the official economy due to much higher cost. The presented survey carried out in Germany indicates that as little as 25 per cent of goods and services generated in NOE overlap with goods and services generated in the official production, and therefore, a vast majority of businesses carried on in NOE would not have been started in the official sector (see Schneider (2006)). If this effect was of decisive importance, the expansion of NOE would lead to increased GDP levels. From this perspective, the intensification of repressive measures undertaken by the state may in fact result in the increase of the number of the unemployed (see Boeri, Garibaldi (2006)).

The total impact of the shadow economy on welfare is not straightforward not only when we focus on the total output and economic growth but also from the point of view of purely social considerations. NOE and unregistered work may be perceived in a positive manner, if they help to prevent poverty, create new jobs for those who are ready to work but for various reasons are not able to find

⁴⁴ We are not talking at this point about the traditional conditioning against the values of explanatory variables but about the probability of becoming an unregistered employee calculated in accordance with the following formula:

a job in the official market. This pertains above all to low-qualified workers and the simple services sector. The value of production generated by these people is often comparable or lower than the cost incurred by employers for officially registered employment, which renders the legal employment of people from this group scarcely profitable. On the other hand, the income derived by this group from unregistered work is immediately spent in the official sector of the economy thus increasing total consumption and aggregate demand. Schneider and Enste (2000) claim that at least two thirds of income generated by NOE is spent in the official market which stimulates its development.

Nevertheless, there are also opinions which point to the negative externalities of the shadow economy. Firstly, it is often raised that companies which operate in the informal sector or which resort to unregistered work give rise to unfair competition for entities operating legally (OECD (2004)). Unregistered employment, especially in those countries where the informal sector is large, affects the tax and social insurance systems. Large size of the shadow economy is reflected in low tax revenue, decreased quality of public services and increased social allowances paid from central budget or from state earmarked funds. The above produces a considerable pressure on public expenditure and results in increased tax burden. Higher taxation, in turn, is an additional motive encouraging people to engage in NOE because officially employed workers (and their employers) incur greater employment costs and thus become less attractive compared with those operating in NOE. This situation concerns in particular low-skill workers and workers involved in low-productivity jobs and has an adverse effect on official employment rates in this group of workers.

A similar mechanism may concern social insurance. On the one hand, people operating in NOE have a limited access to social insurance benefits and they are excluded from most systems that guarantee basic social safety (paid holiday and maternity leave, sick leave, retirement insurance, etc.). On the other hand, however, it is sometimes possible to free-ride, meaning a situation where some people engaged in unregistered work benefit from loopholes in the system and receive benefits which are essentially intended for the poor and unemployed, although they actually have (unregistered) jobs and fail to pay relevant taxes or contributions. The above situation renders it difficult or even impossible to manage the social insurance system effectively. In the absence of means to effectively verify entitlement to benefits, including the verification of the lack of income from work or of the amount thereof, hinders measures intended to help those who are most needy and diminishes the effectiveness of the social policy.

To sum up, it can be stated that the existence of the shadow economy may be perceived in a negative or positive light, and therefore a decision whether its existence in a given country is welfare enhancing or welfare reducing is an empirical question which requires individual approach. Generally, it can be said that a shadow economy of a moderate size, that is of up to 20 per cent, do not give rise to a situation where attempts at decreasing its size could bring about large positive aggregate outcomes. On the other hand, however, if the black economy generates more than 20-30 per cent of total outcome, it can be assumed that the regulations as well as the tax system do not match the expectations of the society, and that structural reforms could bring about not only a reduction in the size of the shadow economy but above all a more efficient utilisation of the existing resources.

The implementation of regulatory reforms intending to decrease the size of the shadow economy may also put into motion the mechanism of positive feedback. Measures set to reduce the extent of NOE (see OECD (2004)), including the deregulation and loosening of the existing, though unnecessary, legal straitjacket, the simplification of the tax system and rationalisation of the tax base, the liberalisation of the Labour Code and its improved enforcement by relevant authorities, should result in registering some of the entities operating in NOE. As a result of these policies, more individuals would pay taxes and social security contributions (the tax base would widen), the pressure on the budget would be smaller and consequently, the marginal tax rates could be lowered and the participation in NOE would become relatively less profitable.

Summary

The assessment of the extent and structure of informal work and economy is a very difficult venture and therefore different methods intended to measure this phenomenon in Poland often generate extremely divergent estimates. In accordance with the estimates of the Central Statistical Office, which are based on a combination of several methods, NOE accounts for approx. 12-15 per cent of GDP. This figure is approx. twice, three times lower than estimates derived from studies based on other methods (e.g. electricity and other econometric estimation methods) and it should, above all, be treated with caution, as an indication that **the actual size of the shadow economy in Poland is not excessively large compared with other countries worldwide.**

The factors that we have identified in this part of the report as encouraging people to engage in undeclared work and thus leading to the larger black economy include, on the one hand, a **financial motive – i.e. escape from excessive taxation**, and on the other hand, **refusal to subject to excessive regulations**. These factors can interact thus enhancing or cancelling out their effects. Hence, there are countries where high taxation and large public sector providing high-quality services coexist with small-sized shadow economy as well as others, where this situation is right the opposite or which represent a mixed model.

In this context, Poland can be included in the relatively heterogeneous group of countries such as the Czech Republic, Hungary, Slovakia, and the countries of Southern Europe – Greece, Slovenia, Italy, Portugal, Spain, where average (on the European scale) size of public sector is accompanied by average or poor quality public services and different (medium or large) sizes of their shadow economies. Poland is not one of the countries where the small size of NOE coexists with effective but expensive State (e.g. Sweden, Norway, Denmark, Austria, France, Germany), or of the countries with relatively small public sector and poor quality of public services which have large shadow economies (Bulgaria, Romania, Lithuania, Latvia, Estonia).

At the individual level, it can be stated that **young and poorly educated people** are relatively more likely to engage in the shadow economy as well as people whose work experience is scarce. Moreover, the shadow economy mostly attracts people to work in sectors and jobs which do not require specialist qualifications, namely **construction, agriculture and simple services**. Consequently, wages in the shadow economy are relatively low and employment is less stable, shorter-term and often performed as an additional job or part-time job. Moreover, according to the available data, people who belong to households that earn their living from non-wage sources also tend to engage in unregistered employment more frequently.