

Does formal work pay in Serbia?

The role of labor taxes and social benefit design in providing disincentives for formal work

Technical Note, to serve as input for a Workshop between the Government of Serbia and the World Bank¹

June 24, 2010

1 Introduction

This technical note is motivated by two particular issues of the Serbian labor market, namely the high levels of inactivity and informal employment among the Serbian working age population. Both of these issues lead to the question if it is actually “worthwhile” for the working age population to engage in income-generating activities in Serbia. And if so, what incentives have employers, the self-employed, and workers actually to register these activities and pay taxes and contributions on the income that is generated?

There are a number of reasons employers, the self-employed, and workers might decide not to register their activities. First, regulations in the product and labor market—like product licensing, employment protection legislation, and minimum wages—might be too stringent, so in order to circumvent these regulations, people might decide to operate outside the formal economy. Second, certain administrative procedures related to paying taxes, accounting, completing statistical questionnaires, and so on, might

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deter people from operating in the formal sector. Third, people and firms might want to avoid paying taxes on revenues, income, profit, or property and social security contributions. Forth, formal income might lead to withdrawal of social benefits—like social assistance or unemployment benefits—so that people might prefer informal or no work over formal work. Fifth, enforcement of existing legislation on regulations and taxation might be weak, so the risks of circumventing regulations and avoiding taxes might be low.

This technical note focuses on the role of labor taxation and social benefit design, how it relates to informal employment and inactivity, and what disincentives for formal work might be provided to people in working age so they choose to “exit” into informality or inactivity. Bearing in mind that labor taxation and social benefit design are but two pieces in the puzzle to explain high levels of informality and inactivity, the analysis presented below highlights how for lower wage earners, the value of formal social security entitlements that come with formal employment would have to be enormously high to offset the opportunity costs. This leads to the conclusion that formal (part-time) jobs at low wage levels—so-called mini-jobs and midi-jobs—are not economically viable for low-wage earners. This lack of economic viability effectively excludes a substantial part of the Serbian working-age population from formal employment and social security coverage. In this latter sense, informality and inactivity might not only be a deliberate choice of exit, but are also a matter of “exclusion”.

The analysis starts from the question of what incentives or disincentives the inactive and the informally employed face when considering formal work. For the inactive, starting to work formally or not will be based on considerations of how any potential formal net wage and social security entitlements compare to the alternative of not working. Not working, though, might imply being eligible to income-tested benefits like social assistance, which they could (partially) lose when working formally, increasing the opportunity costs of formal employment.

For informally employed, switching to formality will have a number of implications for both workers and firms. First, it implies that workers and their employers will enter as contributors to social security. This means that both the employer and the worker have to contribute to the pension fund, the health fund, and the unemployment insurance fund. The decision on contributions will be importantly influenced by the value that informal workers attach to being covered by social security. Second, workers will have to pay personal income tax on their formal gross wages. This decision will be influenced by the value informal workers put on public services and social norms about paying taxes. Paying social security contributions and income tax combined will decrease workers’ take-home pay when compared to their informal wage. Third, just like the inactive, informal workers after formalizing might not be eligible any more to a number of benefits that are income-tested. When having no formal income on record, workers might be eligible to income-tested benefits like social assistance or family benefits. Once informal workers are formalizing, though, they might lose all or parts of these benefits, reducing their formal income further and increasing the opportunity costs of formal work. Firms, finally, which are formalizing informal workers, will have to generate additional formal revenues by switching informal revenues to formal revenues. This implies paying additional taxes in the product market, like sales or value-added taxes.

The note proceeds as follows. The next section describes the characteristics of the informal employed and the inactive. Next, the opportunity costs of formal employment, created by labor taxation and benefit design, are analyzed. This is followed by an investigation of some of the consequences of informality on Serbia's society, with a focus on fiscal implications in terms of lost revenues for the state. The final section outlines some policy options to address informality and inactivity in Serbia.

2 Informal employment and inactivity in Serbia

Before going into further details, the first question to be answered should be how informality is defined. The International Labour Organization (ILO) defines informal employment as: (i) employers and own-account workers who work in their own non-registered enterprises; (ii) contributing family workers; (iii) members of informal producers' cooperatives; (iv) employees whose employment relationship is not subject to national labor legislation, income taxation, social protection or entitlement to certain employment benefits; and (v) own-account workers engaged in the production of goods exclusively for own final use by their household.²

The Serbian Labor Force Survey (LFS) is well designed to measure this concept of informality. It contains questions on most dimensions of the above mentioned definition. Specifically, for the analysis presented below, informality is defined as: (i) all employers, self-employed, and own-account workers of non-registered enterprises; (ii) unpaid family workers; and (iii) all employees without written labor contracts. Since the ILO definition of informal employment includes unpaid family workers and self-employed with unregistered enterprises, it has to be pointed out that this definition includes a large part of the agricultural sector—that is, farmers and their contributing family members. In Serbia, about 60 percent of the informally employed fall into this category (see below).

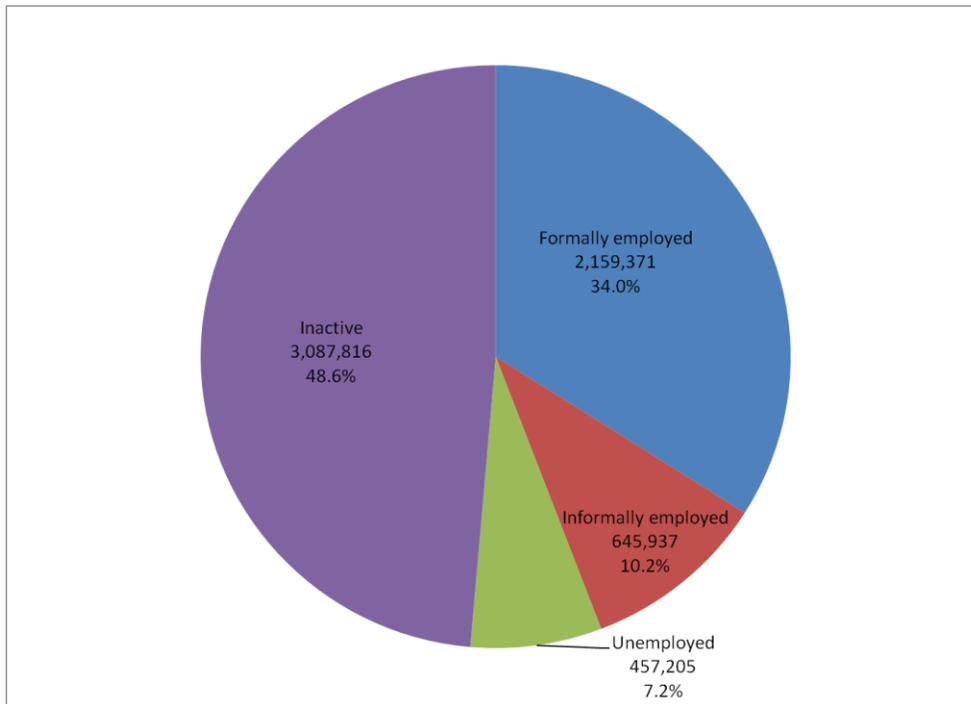
According to the October 2008 LFS, about 650,000 people worked informally (see Table 1).³ That means that about 10 percent of the Serbian working age population—aged 15 or older—were working informally (see Figure 1). To put this into perspective, 2.2 million people were formally employed (34 percent of working age population) while 3.1 million were inactive (49 percent) and 460,000 were unemployed (7 percent). It also means that 23 percent—almost a quarter—of all employed people in Serbia work informally.

Informal employment is concentrated in the private sector, especially in non-registered firms. Informal employment in the public sector is almost non-existent (see Table 3). In the private sector, though, 32 percent of all employed are informal. In private registered forms, about 16 percent of the employed are informal, while almost all workers in non-registered firms are informal. Among all informally employed, about 40 percent work in registered firms and 60 percent in non-registered firms (see Figure 2). So, working in a non-registered firm is a strong indication of being informally employed, but a significant share of the informally employed also works in registered firms.

² See Hussmanns (2003)

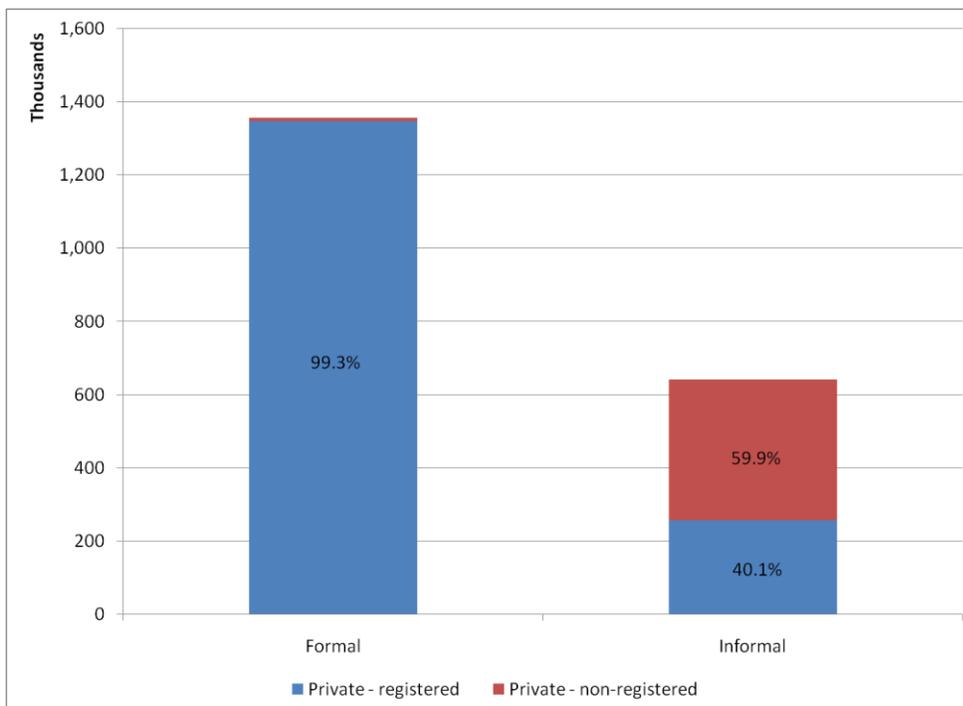
³ All tables can be found in Annex II.

Figure 1: Serbian working-age population (age 15 and over) by employment status (percent, October 2008)



Source: Serbian Labor Force Survey (LFS, October 2008)

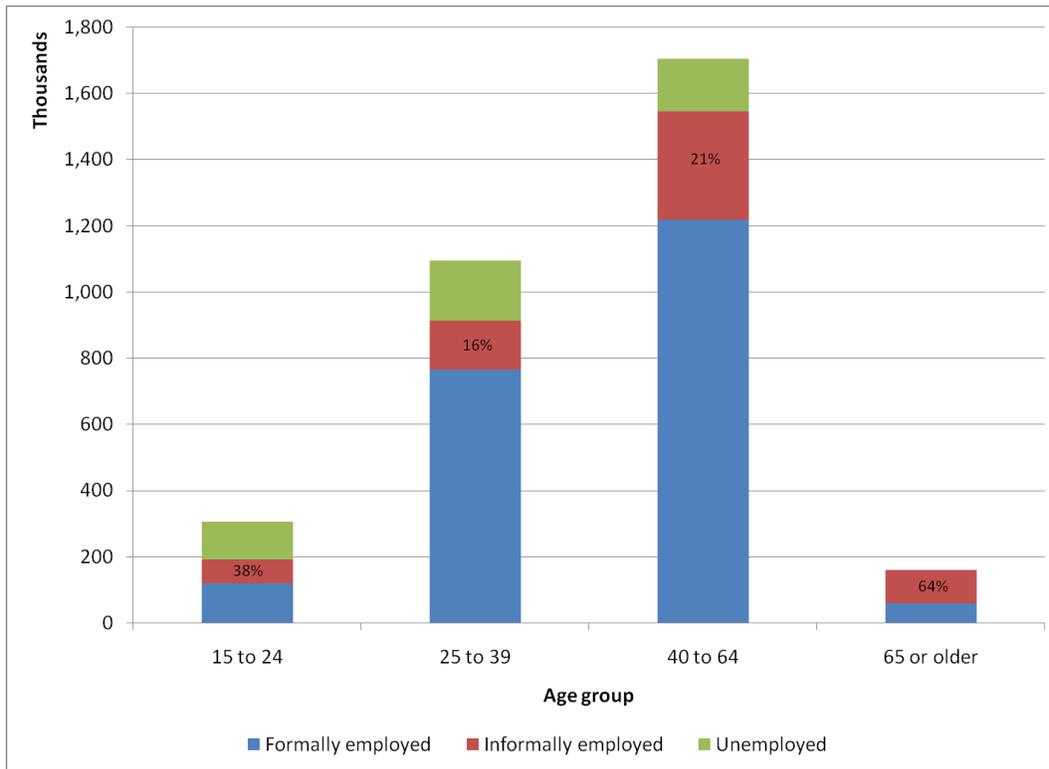
Figure 2: Employed population in the private sector by employment status and ownership type of firm (thousands, October 2008)



Note: Percentage number indicate share of those working in registered or non-registered firms within employment status.

Source: Serbian LFS (October 2008).

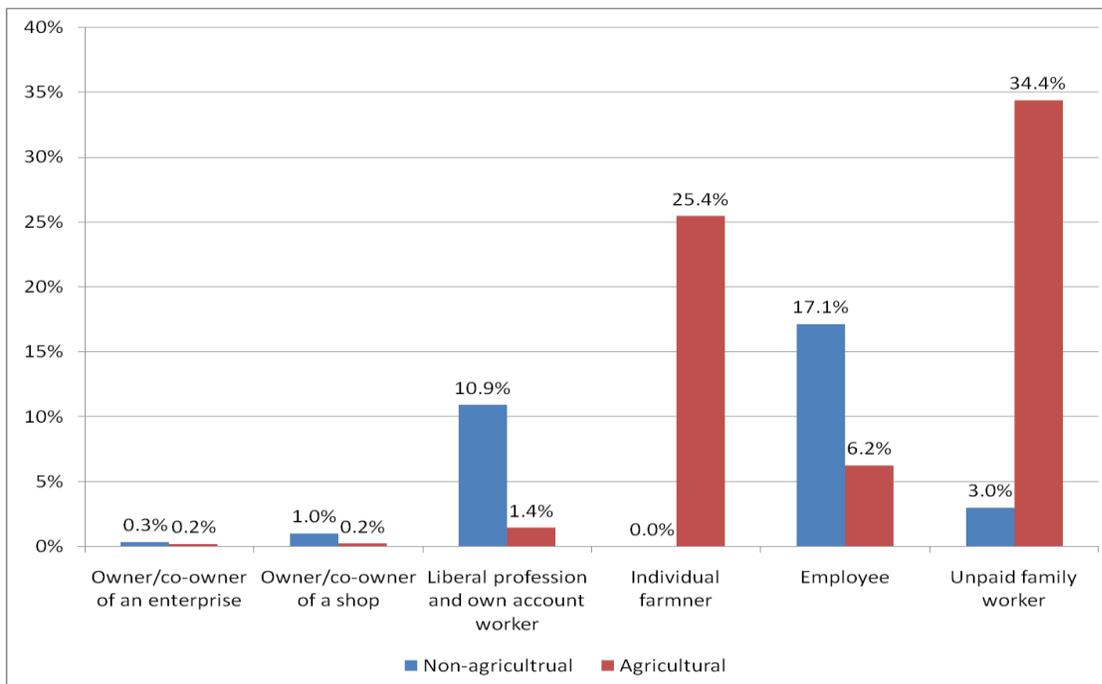
Figure 3: Serbian labor force by employment status and age group (thousands, October 2008)



Note: Percentage number indicate share of informally employed within age group.

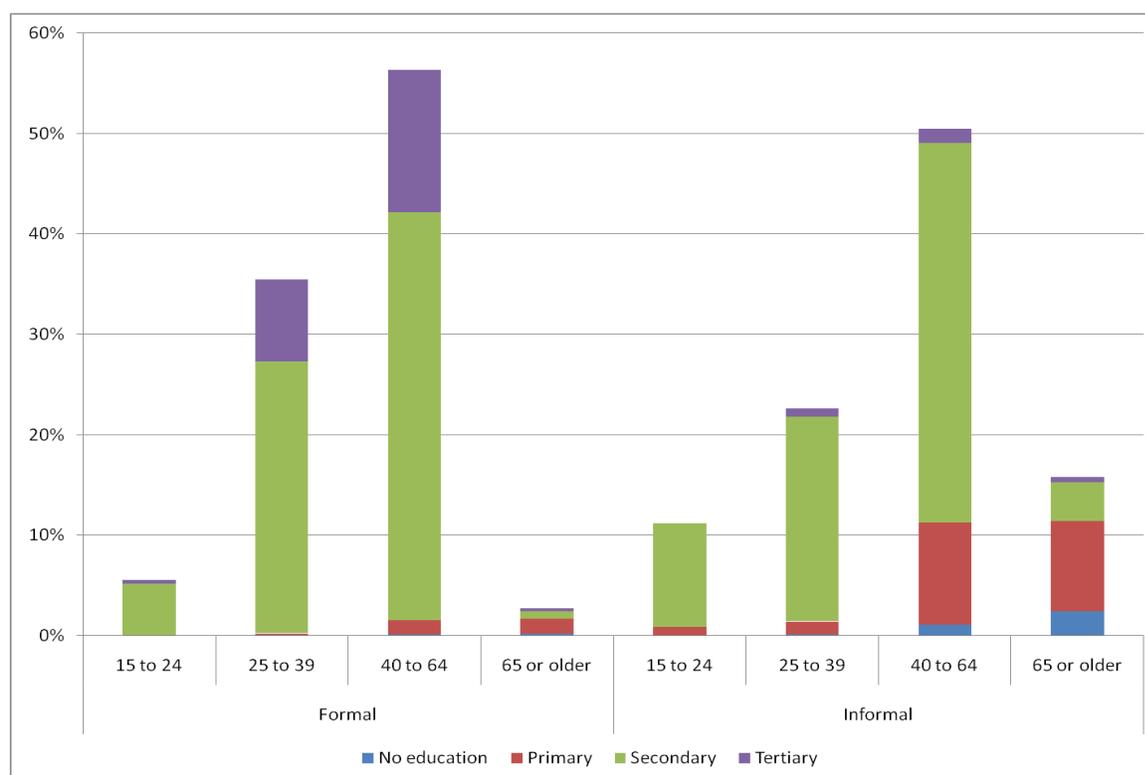
Source: Serbian LFS (October 2008).

Figure 4: Informally employed by professional status and sector (as share of all informally employed, October 2008)



Source: Serbian LFS (October 2008).

Figure 5: Educational attainment by age group of the formally versus informally employed (as share of formally or informally employed, October 2008)



Source: Serbian LFS (October 2008).

The majority of informal workers is aged 40 to 64. About 330,000 of the total 650,000 fall in this age group (see Table 1). Yet, when looking at informality rate by age group, the highest shares of informal workers are among the young (38 percent of the 15 to 24 year old workers) and the old (64 percent of those workers aged 65 or older, see Table 2). So although most informal workers are aged 40 to 64, it is actually those who are at the margin of the labor market who are most likely to be informal, namely those who just entered the labor market (the young) and those who are about to leave the labor market (the old). Figure 3 below illustrates.

For the most part, informal workers are employed in the agricultural sector, but there is also a sizeable informal labor force in the non-agricultural sector. About 68 percent of all informal workers are employed in the agricultural sector, mainly as individual farmers or as unpaid family workers (see Table 4). In the non-agricultural sector, employees are the main group of informal workers (see Figure 4). Typical jobs of informal workers in the non-agricultural sector are in the retail and catering industry. The second largest informal group in the non-agricultural sector is the liberal professions and own-account workers. In fact, when compared to formal workers in this group, the data suggest that almost 70 percent of all workers in this group are informal.

In terms of educational attainment, informal workers display significantly lower education levels than formal workers. About 25 percent of informal workers have no or only primary education, while only 3 percent of all formal workers fall in the same group (see Table 5). Especially workers aged 40 and older

with no or only primary education seem to be concentrated in the informal work force. Almost 70 percent of all workers who fall in this group are working informally. Figure 5 illustrates.

The informal sector does not seem to act as a cushion during times of crisis. Contrary to common believe, informal employment was affected more severely than formal employment in the course of 2009. Comparing the shares of the working age population that are formally or informally employed, unemployed, or inactive between April 2008 and October 2009 shows that the informally employed population decreased by more than 20 percent while the formally employed population decreased by only 5 percent (see Table 6). At the same time, the unemployed population increased by 18 percent and the inactive population increased by 5 percent.

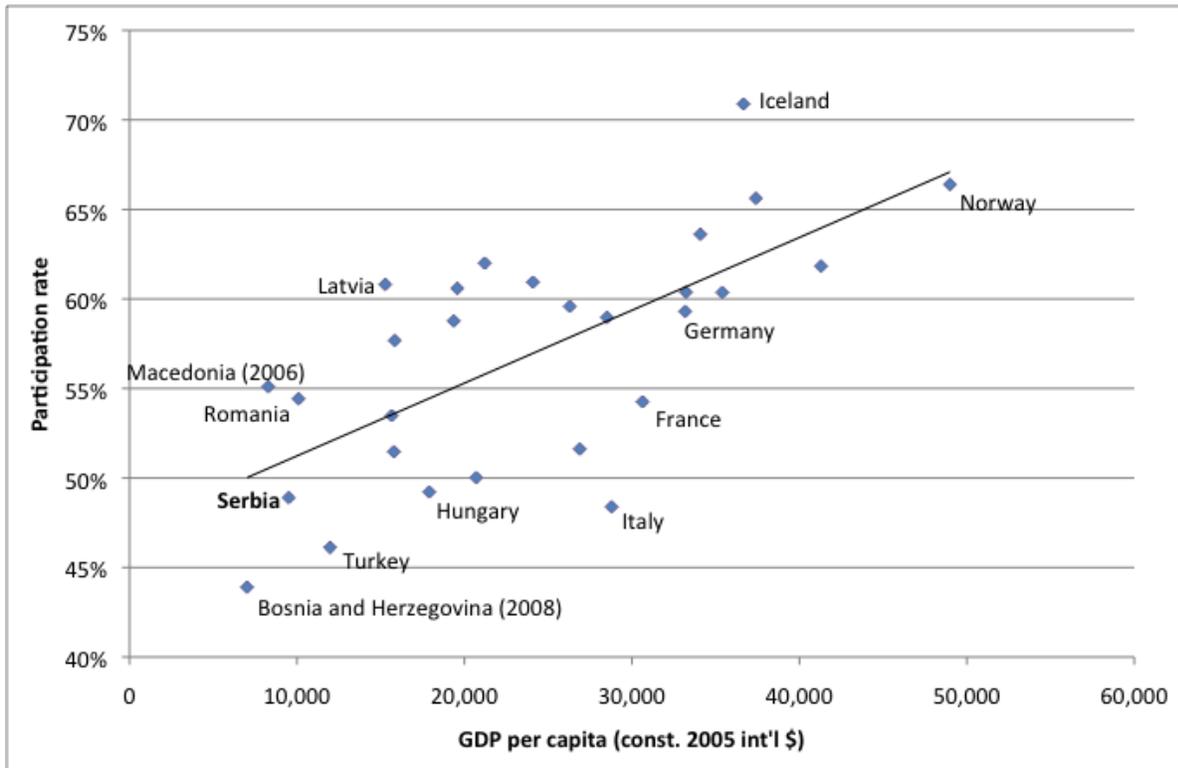
The data suggests a certain segmentation of the Serbian labor market between formal and informal employment. Informal employment seems to be more sensitive to changes in economic growth, at least during the crisis year of 2009. One potential explanation could be that firms use informal workers for extensive adjustments of their staff, while formal workers are used for intensive adjustments. That is, firms adjust informal employment through layoffs during an economic downturn, while formal employment is adjusted by reducing working hours. This could potentially be due to employment protection legislation, which increases firing costs for the formally employed. Also other labor market policies that aim to support formal employment—like, for example, short work schedules or wage subsidies—might contribute to increasing the opportunity costs of firing formal worker vis-à-vis informal workers. A definite answer, though, cannot be provided without further analysis and might be different from what is observed in other countries.⁴

With regard to inactivity, Serbian labor force participation is low at only 51 percent (October 2008), and during the financial crisis last year, labor force participation dropped even further and is now at only 49 percent (October 2009, see Table 6). This compares unfavorably with other European countries (see Table 7). Even when correcting for GDP per capita, Serbia seems to be below the trend when compared to other European countries (see Figure 6). In terms of educational attainment, the inactive population is less educated than the formally employed population, suggesting that their earnings potential on the labor market is lower, just like the informally employed (see Figure 7).

A higher participation rate of the population is important for competitiveness, especially for an aging population. The high inactivity rate means an untapped potential for the Serbian economy, as for any other country. This is also the reason why the European Union's (EU) Lisbon strategy—now replaced by the 2020 strategy—sets a target of 75 percent labor force participation of the population aged 20 to 64. For Serbia, as an aspiring EU country, it will be important to consider policies on how to increase the activity rate and unleash the untapped potential of the inactive labor force. This is discussed more in detail further below.

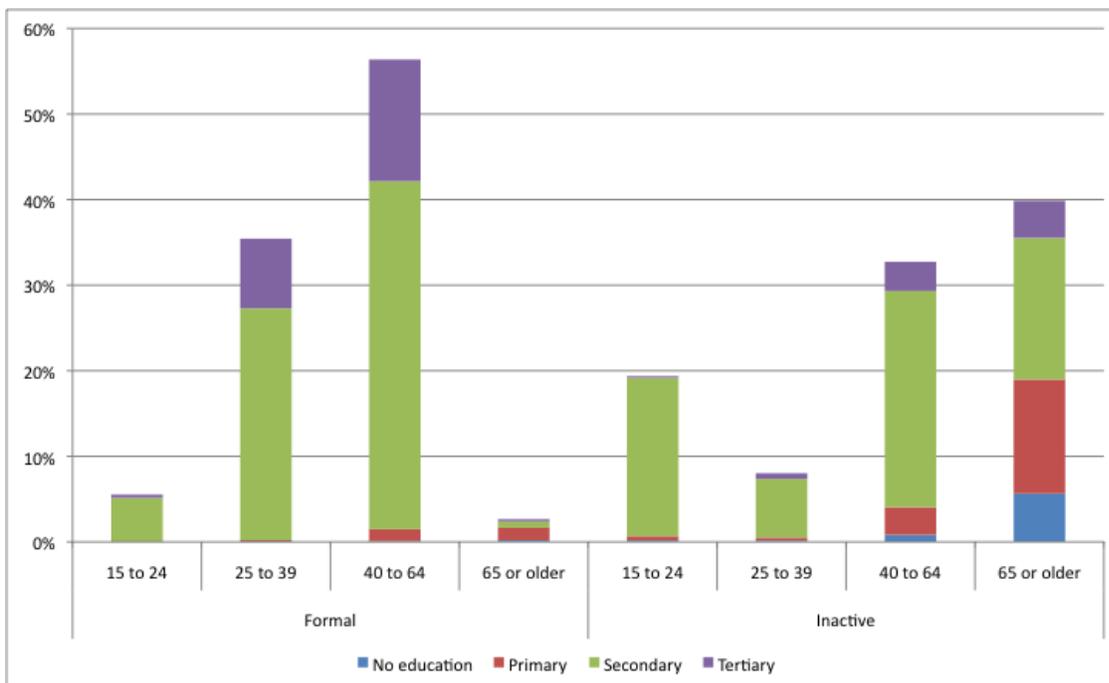
⁴ The literature acknowledges that the share of informal employment might be pro-cyclical or counter-cyclical, although in most countries it appears to be counter-cyclical. For a literature overview on this topic, see Perry et al. (2007).

Figure 6: Scatter plot of participation rate (labor force as share of population aged 15 or older, 2009) versus GDP per capita (constant 2005 international \$, 2007) for select countries



Source: Author's calculation, based on Eurostat (2010), Serbia LFS (October 2008), and World Bank (2010).

Figure 7: Educational attainment by age group of the formally employed versus inactive (as share of formally employed or inactive, October 2008)



Source: Serbian LFS (October 2008).

In conclusion, it seems that a large share of the Serbian population is either not participating in the labor market at all, or employed informally. Although the financial crisis has somewhat diminished informal employment recently, 23 percent of all employed were working informally in 2008. Since there is almost no informal employment in the public sector, this corresponds to an informality rate of 32 percent of all employed in the private sector. Inactivity, on the other hand, increased during the crisis.

Most of the informal work occurs in the agricultural sector, either as individual farmers or as unpaid family workers, although there is also a sizable informal labor force in the non-agricultural sector, in particular among employees and own-account workers. In addition, informality is concentrated among those with low educational attainment and above the age of 40, and to some extent among the young. In other words, informality is high among those that have just joined the labor force (the young) or those that are about to leave it (the elder, in particular above the age of 65). Just like the informally employed, also the inactive display low educational attainment. This suggests that for both groups, earnings potential in the labor market are likely to be concentrated at the lower wage end.

The financial crisis could represent an opportunity to permanently reduce informal employment. The economic downturn of 2009 has considerably diminished informal employment, but the risk is that it will strongly rebound during the economic recovery. At the same time, inactivity has increased during the crisis and—given Serbia’s aging population—urgently has to be decreased in the future. Reforms that could prevent a resurgence of informal employment during the recovery and decrease inactivity might also address labor taxation and social benefit design, which is the topic of the next section.

3 Labor taxation and social benefit design

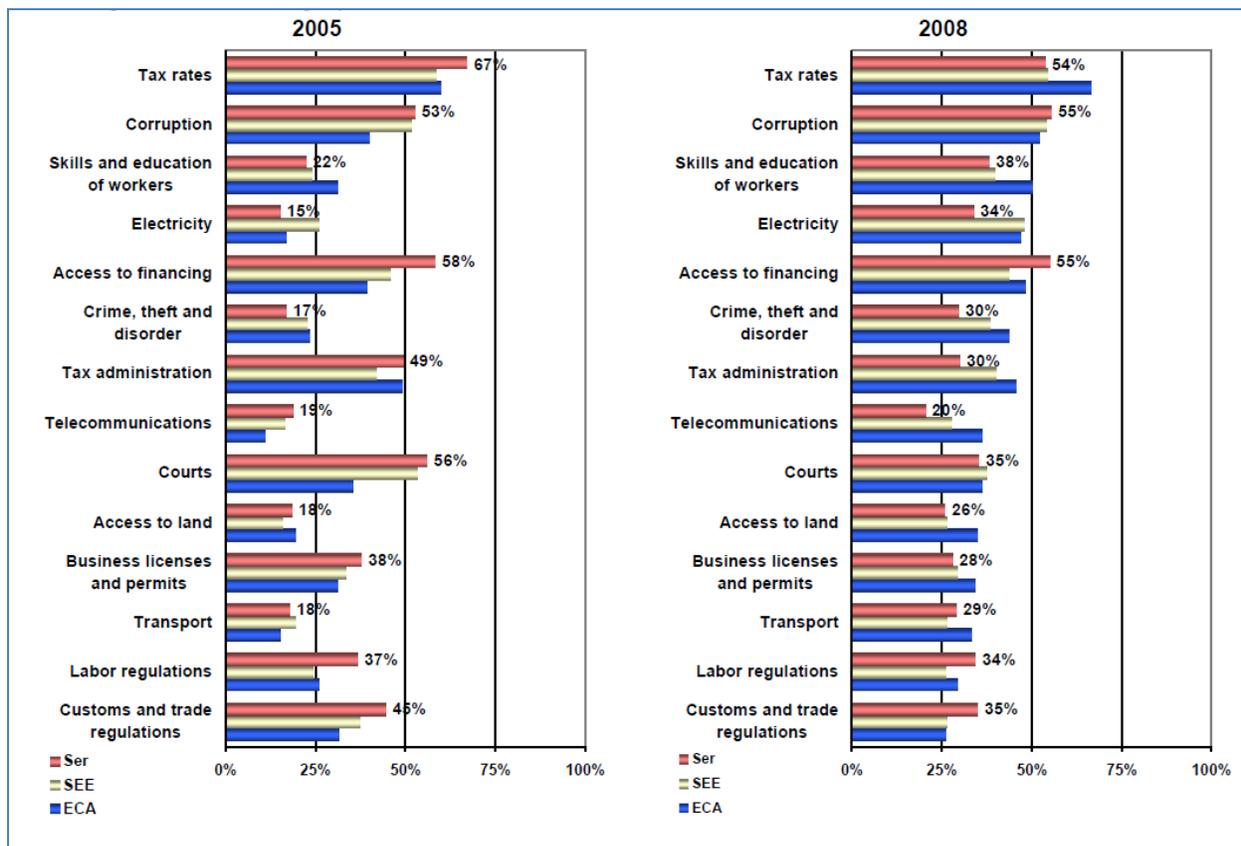
This section pursues a closer investigation of the Serbian tax and benefit system, which will suggest that for low-wage earners, the value of social security contributions that are associated with formal employment have to be enormously high to offset the opportunity costs of formal employment. This is due to minimum social security contributions, but also due to the design of social assistance and family benefits. Taken together, informal workers at low wages have to give up a considerable amount of their informal wage in order to formalize, and it is unlikely that the value of social security entitlement (and other benefits like formal employment protection legislation) that they get in return for formalization exceed these implicit costs. The same holds for the inactive when considering formal work at low wage levels. In other words, so called-mini jobs and midi-jobs—that is, part-time jobs that pay less than the full-time minimum wage—are hardly economically viable in Serbia. Hence, workers with low educational attainment—like the informally employed and the inactive—might by and large be excluded from formal work in Serbia.

Labor taxation and benefit design are but two pieces in the puzzle to explain high levels of inactivity and informality among the Serbian working age population. Other reasons are related to regulations in the product and labor market, administrative burden related to taxes, regulations, or accounting, and taxation on revenues, profit, tradable goods, property, enforcement of laws, and so on. This technical note is not trying to identify which of these potential reasons are the main causes for high levels of

informality and inactivity, but narrowly focuses on the incentives and disincentives for formal employment provided by the labor taxation and benefit system of Serbia.

One indication, though, that at least taxation in general plays a prominent role in income-generating activities in Serbia comes from enterprise surveys. A World Bank survey among Serbian enterprises reveals that 54 percent of firms cite tax rates as a one of the major obstacle—together with corruption and access to finance—for doing business in 2008 (see Figure 8). The question refers to all types of taxes, and not specifically labor taxes. Nevertheless, the results indicate that employers perceive tax rates as high and as a greater obstacle to doing business than regulations and administrative procedures. Customs and trade regulations (35 percent), labor regulations (34 percent), tax administration (30 percent), and business licenses and permits (28 percent) figure less prominently as an obstacle to doing business. Therefore, although the results of this enterprise survey are not a direct measurement of obstacles to formal employment, they give an indication that tax rates could be a constraint for creating new formal jobs.

Figure 8: Obstacles to doing business in Serbia 2005 and 2008 (percentage of firms indicating a problem)

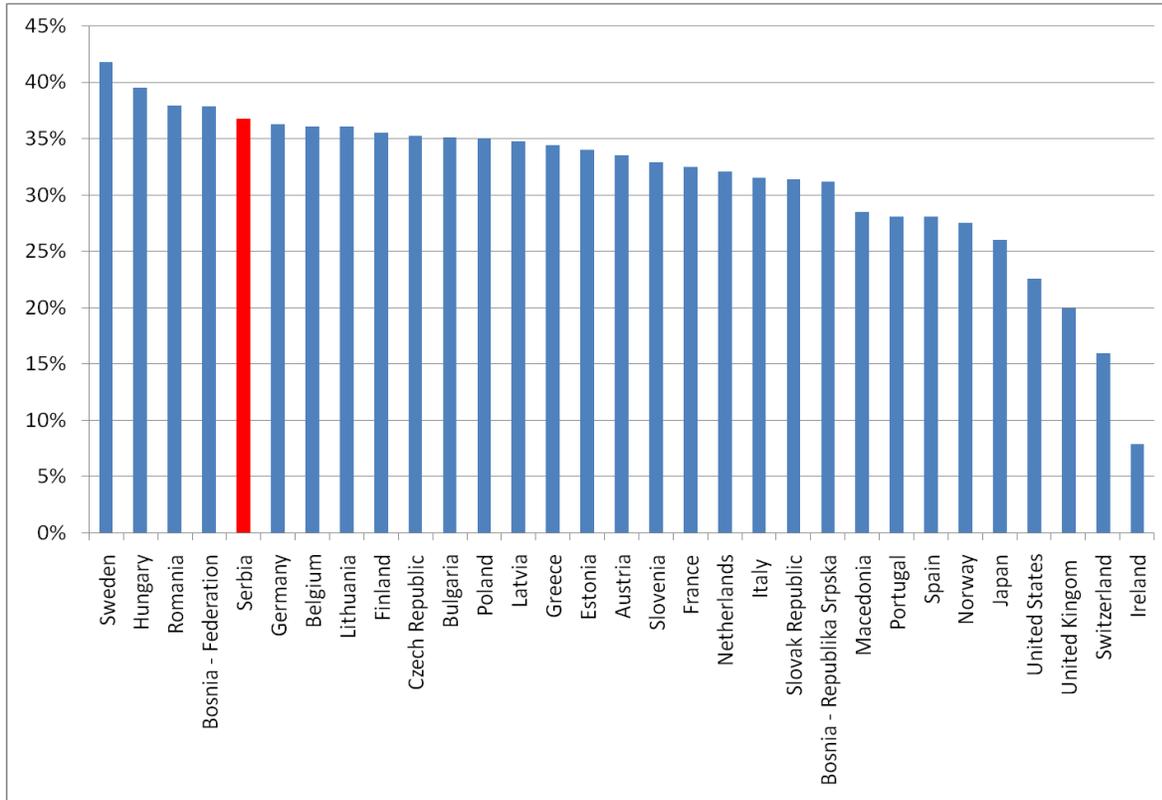


Source: World Bank (2009).

Labor taxes in Serbia are average at higher wage levels, but high at lower wage levels. A comparison with OECD and neighboring countries shows that the tax wedge on labor at lower wage levels in Serbia is one of the highest at 36.7 percent (see Figure 9). The tax wedge measures the difference between labor costs and take-home pay of workers. It expresses the costs of social security contributions by

employers and employees and the personal income tax of employees as a share of total labor costs. These taxes vary depending on family type and wage level. For a single with no children who receives a gross wage of 33 percent of the average wage, only four countries charge higher taxes than Serbia (see Table 8). For a one-earner couple with two children, only three countries charge higher taxes than Serbia (see Table 9).⁵

Figure 9: Tax wedge for a single with no children at 33 percent of average wage for select countries



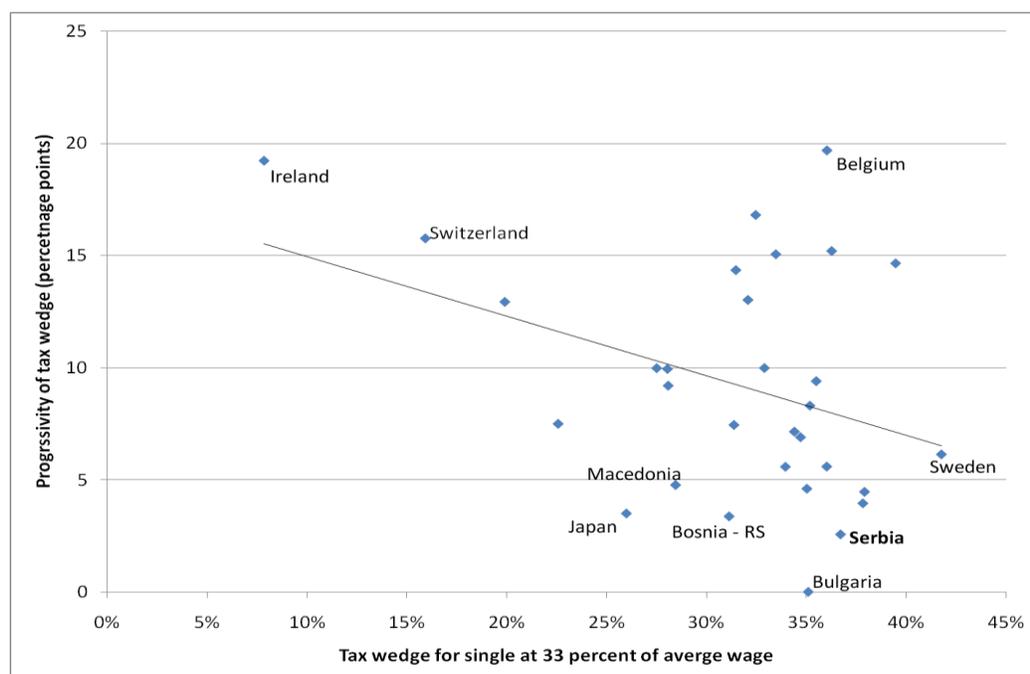
Source: Author's calculations based on OECD Tax and Benefit model.

Labor taxation in Serbia is not very progressive. While in most other countries, labor taxes increase significantly with the wage level—for many countries, by over 10 percentage points between 33 and 100 percent of average wage level—in Serbia, labor taxes increase by only 2.6 percentage points. Although countries with a high tax wedge at lower wage levels can be expected to display less progressivity, Serbia displays especially low level of progressivity (see Figure 10).⁶ Overall, for singles without children, only the Bulgarian payroll tax system displays less progressivity.

⁵ In Serbia, full-time work at 33 percent of the average wage is below the legal minimum wage, but the same tax wedge applies to someone receiving average wage, but working 33 percent part-time. The same holds for most other countries, although there can be slight variations of the tax wedge for part-time workers.

⁶ The assumed relationship is that tax systems need to raise a certain fixed amount of resources, and those that put higher taxes on lower wages have less of need to increase taxes at higher wages and hence display less progressivity.

Figure 10: Scatter plot of tax wedge for a single at 33 percent of average wage (percent) versus progressivity of tax wedge (percentage point change) for select European countries (2008)



Source: Author's calculations based on OECD Tax and Benefit model.

The reason for the high tax wedge at lower wage levels in Serbia are the minimum social security contributions that employees and employers have to pay. These minimum contributions are set at RSD 66,500 annually, equally split between employers and employees. The overall social security tax rate is set at 35.8 percent of gross wage: 22 percent for old-age pension, 12.3 percent for health insurance, and 1.5 percent for unemployment insurance. Yet, because of the minimum contribution requirement, everyone earning less than RSD 192,000 annually pays a share higher than 35.8 percent of gross income for social security. The minimum social security contribution is not adjusted for hours actually worked, so also part-time workers are subject to it. This means that in particular so-called “mini-jobs” and “midi-jobs”—that is, low-paid part-time jobs with few hours worked per week—have a relatively higher burden of payroll taxes.⁷ In the extreme case of someone working 5 hours per week at the minimum wage, this person would receive an annual gross wage of about RSD 29,000—from which this worker would have to pay RSD 33,250 for minimum social security contributions so that he or she ends up with a negative net wage. The employer has to pay an additional RSD 33,250 for social security contributions. In other words, formal work does not pay at the lower wage levels.

How would a worker and his or her (potential) employer then decide about a formal or an informal job? Ignoring other considerations related to regulations, administrative burden, enforcement, and so on, for a low-paid, part-time job both the employer and the worker will have strong incentives to circumvent the high labor taxation and make the job an informal one. Nevertheless, various factors have to be considered when analyzing the decision between formal and informal work apart from labor taxes.

⁷ The terms mini-jobs and midi-jobs originate from the social welfare reforms (Hartz IV) in Germany in the early 2000s, which aimed at making work more lucrative for low-wage earners in this labor market segment.

Labor taxes decrease workers' take-home pay when compared to their informal wage, but also, just like the inactive, informal workers after formalizing might not be eligible any more to a number of benefits that are income-tested. When having no formal income on record, workers might be eligible to income-tested benefits like social assistance or family benefits. Once informal workers are formalizing, though, they might lose all or parts of these benefits, reducing their formal income further and increasing the opportunity costs of formal work. In addition, firms that are formalizing informal workers will have to generate additional formal revenues by switching informal revenues to formal revenues. This implies paying additional taxes in the product market, like sales or value-added taxes.

The latter point regarding the need for firms to formalize revenues in response to formalizing workers is beyond the scope of this technical note. The following analysis will focus on the incentives and disincentives provided by the labor tax and benefit system. In doing so, it will be useful to apply a more precise measure on what the advantages and disadvantages of formal and informal work are for employers and employees, not only at the extremely low wage level, but across the entire wage spectrum. This allows to obtain a sense of how high the opportunity costs of formal labor are—expressed in terms of informal wage and forgone income-tested benefits like social assistance. This in turn gives a sense of the how the value of social security entitlements that come with formal employment at least have to be to offset the opportunity costs of formal employment.

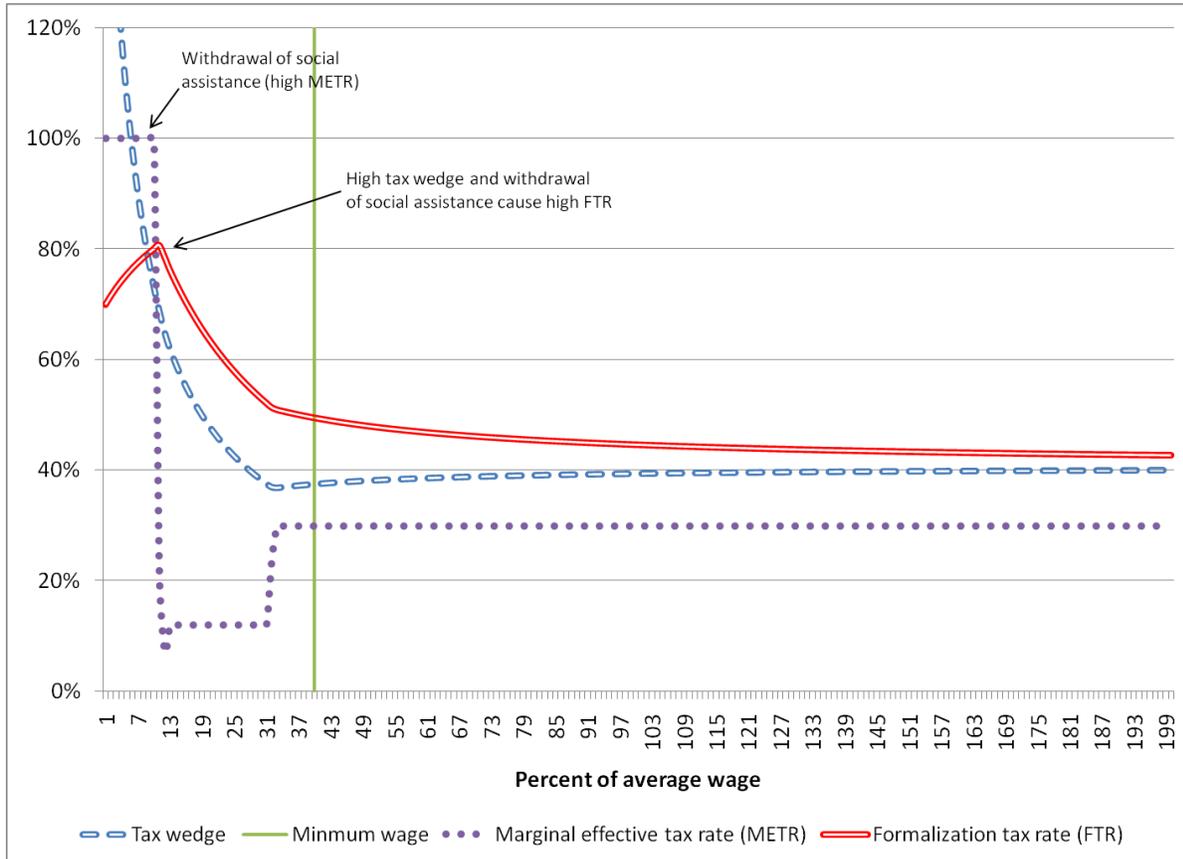
Formal work in Serbia has high opportunity costs when compared to informal work for lower wage levels. Because of the minimum social security contributions, the opportunity costs are especially high for low wage levels. Moving along the hypothetical wage spectrum from 0 to 200 percent of average wage and using actual legislative data on income tax and social security contributions, Figure 11 depicts the tax wedge as the blue, dashed graph for a single earner with no children. Figure 12 does the same for a one-earner couple with two children. As can be seen, the tax wedge is stable around 40 percent for wage levels above the minimum wage, but is significantly higher for wage levels below 25 percent of the average wage and lower. For wage levels below 10 percent of average wage, the tax wedge is close to or above 100 percent.

The tax wedge and the withdrawal of social benefits are the main contributors to opportunity costs of formal work. Think of an informal worker who earns a certain level of informal wage.⁸ If this worker were to work in the formal sector, various implicit opportunity costs occur: First, assuming that the value of the marginal labor product does not change because of formalization, total labor costs of the informal worker have to be the same as for the formalized worker. For the informal worker, total labor costs are the informal wage. For the formalized worker, total labor costs are the net wage plus the income tax and both the worker's and the employer's social security contributions—in other words, the net wage plus the entire tax wedge. Comparing the informal wage with the worker's potential formal net wage, the entire tax wedge enters as an opportunity cost of formal work for the informal worker. Second, informal workers also face implicit opportunity costs because they might lose parts of certain income-tested benefits—most importantly social assistance and family benefits—once they have a

⁸ Only worker who are not registered at all are considered; partially formal workers who underreport their wages are not considered.

formal income on record. For example, if an informal worker receives a certain amount of social assistance, this benefit will be decreased or completely withdrawn if the worker formalizes and has an official income on record. This amount of the withdrawn benefit also enters as an opportunity cost of formal work.

Figure 11: The tax wedge, the marginal effective tax rate (METR), and the formalization tax rate (FTR) for a single with no children in Serbia (2009)



Source: Author's calculations based on OECD Tax and Benefit model.

Therefore, both of these losses—the tax wedge and withdrawn benefits—have to be taken into account when considering the implicit opportunity costs of formalization. At the same time, though, informal workers also gain from formalization: they gain a future right to an old-age pension, and they gain rights with regard to disability insurance, workers compensation, health insurance, and unemployment insurance.

Arguably, the most important of these potential gains are old-age pension and health insurance. With regard to old-age pensions, though, one has to keep in mind that especially low-wage earners tend to strongly discount future benefits because their concerns are focused on short-term income, and in cases of poverty, day-to-day consumption. Also, any means-tested social pensions for the elderly might further discount the value of a vested old-age pension. With regard to health insurance, one has to keep in mind that the value of *contributing* to health insurance is considerably diminished because coverage is relatively easy to obtain for free. Many people are co-insured for free because their spouses might

work in the formal sector. Yet, more importantly, for all those who have a monthly income below RSD 16,000 per month, health insurance is free. Since informal workers have no official income on record, it is therefore relatively easy for them to obtain free health insurance. They are required, though, to register as unemployed with the National Employment Service (NES), which creates additional problems further discussed below.

The implicit costs of formalization for informal workers are therefore a measurement of the necessary minimum value of social security benefits they receive in return for formalization. The value of rights to pension and unemployment insurance—but also from formal employment protection legislation—they gain from formalization must exceed their implicit opportunity costs from formalization. The red, solid graph in Figure 11 expresses this implicit cost to the informal worker as a share of informal income (the so-called formalization tax rate, FTR). That is, it measures the difference between informal income (informal wage, social assistance, and family benefits at the level of no formal wage) and formal net income (formal net wage, social assistance, and family benefits at formal wage level) as a share of informal income. It is therefore the share of informal income that an informal worker has to give up to formalize.

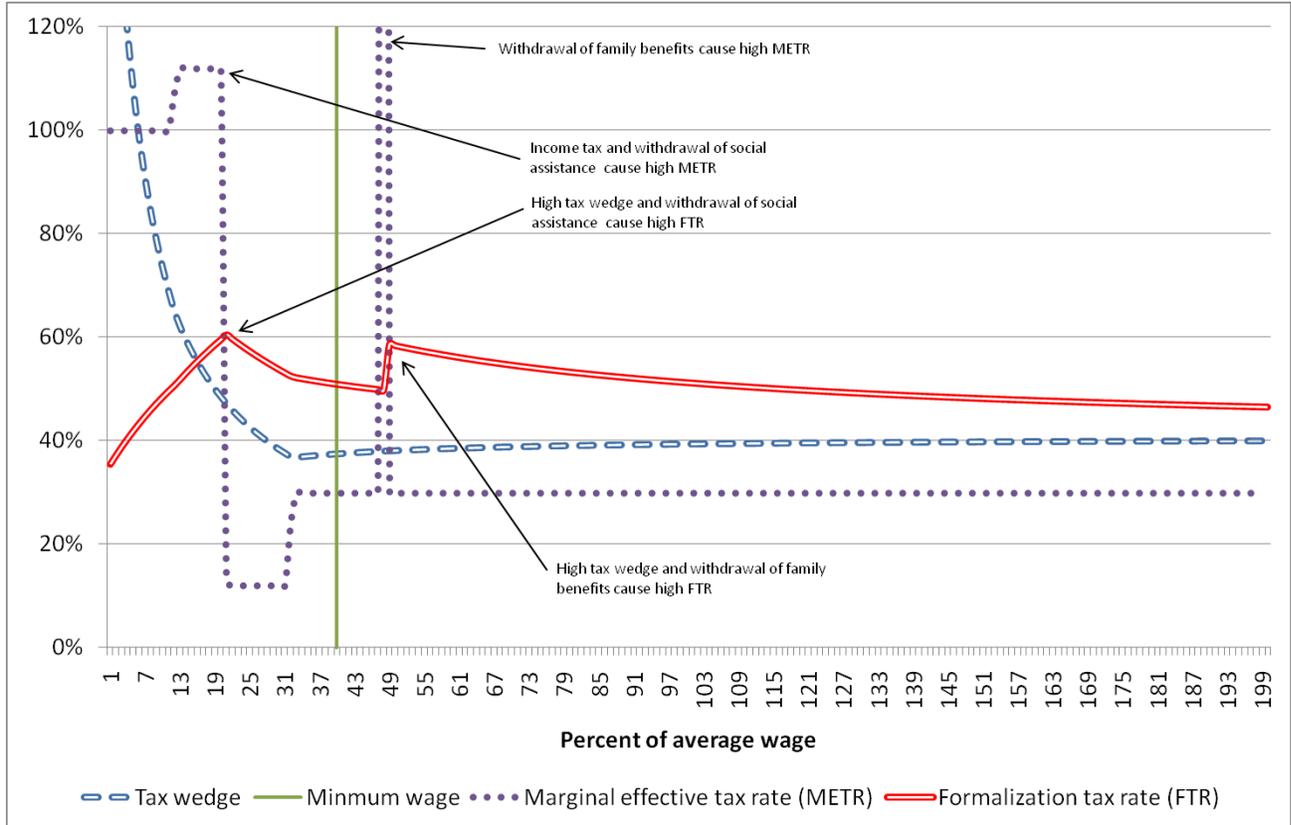
For lower wage levels, the formalization tax rate is high. A single with no children who earns less than the minimum wage in the informal sector has to give up between 50 to up to 80 percent of income to formalize (see red, solid graph in Figure 11). A one-earner couple with two children has to give up between 30 and 60 percent of informal income at very low wage levels, and between 50 and 60 percent of informal income at wage levels between 10 and 100 percent of average wage (see red, solid graph in Figure 12).

The main reasons for the high opportunity costs of formal work are the minimum social security contributions and the sudden withdrawal of social assistance and family benefits at higher wage levels. The minimum social security contributions have already been discussed above as one of the main obstacles to formal employment at the lower wage levels. Also the design of income-tested benefits plays an important role. Social assistance is paid out as a top-up to earned gross income to guarantee a minimum gross income of RSD 64,400 for a single with no children. Any earned gross income is subtracted from social assistance that is paid out. This means that any formal mini-job at wage levels below 10 percent of average wage does not pay—in fact, such a formal mini-job would decrease net income because of the loss in social assistance in combination with minimum social security contributions that have to be paid. Even for higher-paid midi-jobs, the net gain in income is not very high for the same reasons. For an informal worker, the sudden loss of social assistance due to even low levels of formal wage contributes to the implicit opportunity costs of formalization. A more phased-in withdrawal of social assistance could decrease this disincentive.

Family benefits also contribute to the formalization tax rate, albeit at higher wage levels of around 50 percent of average wage. A one-earner couple with two children receives an annual family benefit of RSD 44,700 if formal gross earnings do not exceed 50 percent of average wage. For higher wage levels, though, no family benefits are paid at all. This increases the implicit opportunity costs of formalization at this particular wage level (see the spike of the red, solid graph around 50 percent of average wage in

Figure 12). Informal workers with children at wage levels beyond 50 percent of average wage have to take into account that they would lose RSD 44,700 in family benefits annually if they worked formally.

Figure 12: The tax wedge, the marginal effective tax rate (METR), and the formalization tax rate (FTR) for a one-earner couple with two children in Serbia (2009)



Source: Author's calculations based on OECD Tax and Benefit model.

The marginal effective tax rate (METR) also suggests that formal work does not pay in Serbia at lower wage levels. METR—depicted as the purple, dotted graph in Figure 11 and Figure 12—measures at a given wage levels how much of an *additional* dinar earned in formal gross wage is taxed away, either as labor tax or on the form of withdrawn benefits. It is therefore an indication of how much it pays for workers to earn more gross income, either by increasing work hours or receiving higher wages.

In Serbia, at low wage levels (below 10 percent of average wage), every dinar earned is subtracted from entitlements to social assistance, hence 100 percent of any additional dinar earned is taxed away. For one-earner couples with two children, METR even exceeds 100 percent at wage levels between 10 and 20 percent, when personal income tax starts to kick in, meaning that net income decreases as gross wage increases. The same happens at 50 percent of average wage, with the sudden loss of family benefits.

It is unlikely that the value that informal workers put on social security benefits and employment protection exceed the high implicit costs of formalization. The analysis above has shown that informal workers at low wage levels have to give up significant amounts of their informal wage in order to

formalize, and it is unlikely that the rights they gain in return for formalization exceed these costs. The only relevant entitlements they gain from formalization are old-age and disability pensions and unemployment insurance. Health insurance, which is arguably the most important social security entitlement with immediate—as opposed to future—benefits, can be obtained through a spouse or by registering as unemployed, so it goes not into the value of formal benefits. The value of vested old-age pensions could be further discounted by non-contributory social assistance. The design of income-tested benefits like social assistance and family benefits also discourage formal jobs as formal income could easily lead to withdrawal of benefits.

In conclusion, formal mini-jobs and midi-jobs—that is, low-paying part-time jobs which earn less than minimum wage—do not seem economically viable in Serbia. This could lead many low-educated workers to either not work at all and be inactive, or work informally. The previous analysis suggests that a substantial part of the informal labor force in Serbia has indeed low educational attainment and might work exactly in these kinds of mini-jobs and midi-jobs.

The next section will elaborate by estimating how much informal workers are actually earning in Serbia, and based in this estimation, how much fiscal revenues are lost due to informal work.

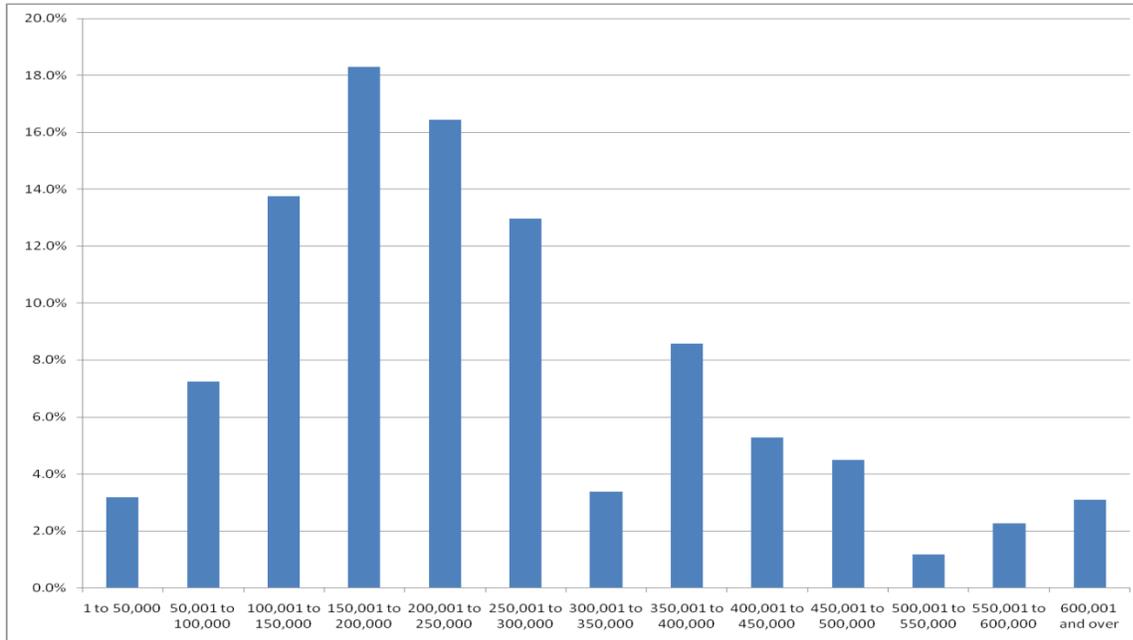
4 The impact of informality

The majority of informal workers with labor income earn less than minimum wage. Collecting social security contributions from those earning more than RSD 200,000 could, *ceteris paribus*, boost revenue collection by up to 5 percent for social security institutions. The fiscal impact from creating formal mini-jobs and midi-jobs, on the other hand, is unlikely to create significant new revenues. At the same time, it would increase coverage and therefore create new liabilities for social security, but it would also decrease future poverty at old age. The impact of informality—and also inactivity—on the National Employment Service (NES) and the health insurance fund (HIF) is significant. Because registered unemployed are effectively entitled to free health insurance, many informal and inactive registered as unemployed, which puts an overwhelming administrative burden in NES. Raising even small contributions for HIF from any eventual formal mini-jobs and midi-jobs could alleviate the administrative burden for NES and raise additional resources for HIF.

The majority of informal workers earn less than minimum wage. The section describing the characteristics of the informally employed points out that many informal workers (and also inactive) have low educational attainment. This suggests that the majority of informal workers have low (or, in the case of unpaid family workers) no earnings. A more detailed exploration of the Serbian LFS and Household Budget Survey (HBS) confirms this conjecture. Applying a propensity score matching methodology to combine the labor status data of the LFS with the income data of the HBS suggests that about 40 percent of informal workers have annual labor income of less than RSD 200,000, and about 60

percent earn less than 250,000 (see Figure 13).⁹ To put this into perspective, the legal annual gross minimum wage in 2008 was RSD 236,000.

Figure 13: Estimated distribution of informal workers with labor income by wage group (as share of all informal workers with labor income, 2008)



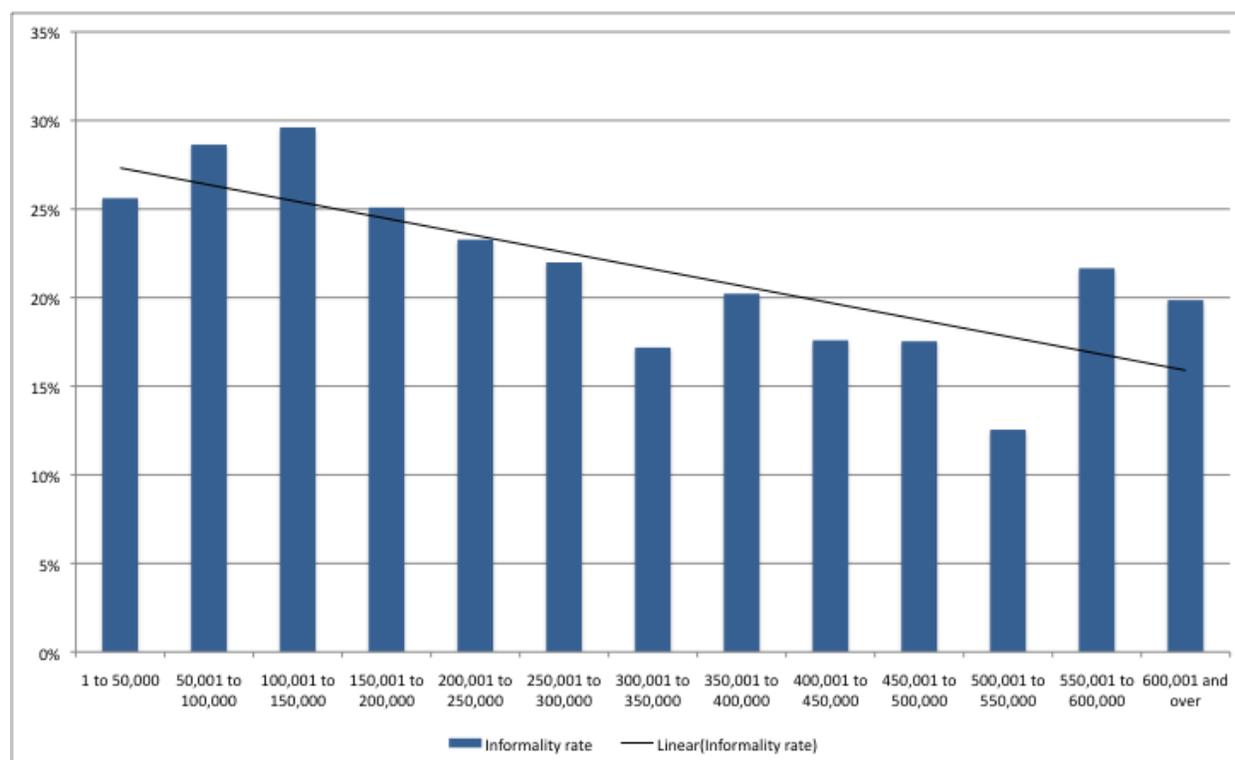
Source: World Bank staff calculations based on Serbian LFS (October 2008) and Household Budget Survey (HBS, 2008).

Therefore, the majority of informal workers with labor income face high implicit opportunity costs of formalization. The data suggest that many informal workers fall in the income range where labor taxation is disproportionately high and the potential loss from withdrawal of benefits like social assistance and family benefits is significant. In other words, for many informal workers and their employers formal work does not pay because there are no economically viable options for formal mini-jobs and midi-jobs in Serbia. The data also suggests that informality rates are higher among low-wage earners. Among all workers with labor income, about 25 to 30 percent are working informally at lower wage levels (below RSD 200,000 annually), while at higher wage levels informality rates are generally below 20 percent (see Figure 14).

Serbian social security institutions might lose up to 5 percent of total collected contributions due to informal labor earning more than RSD 200,000 a year. This estimate takes into account only labor income, but not income from self-employment, agriculture, capital income, and so on. Lost revenues from these income sources cannot be estimated at this point. Also, this estimation does not take into account any changes on labor supply and demand caused by changes in tax rates. Such estimation would require considerable additional analysis, based on panel data.

⁹ The matching procedure only takes into account labor income, not income from agriculture, self-employment, capital income, or other forms of income. For a description of the methodology, see Annex I.

Figure 14: Informality rate among workers with labor income by wage group (informal workers with labor income as share all workers with labor income by wage group, 2008) and linear trend



Source: World Bank staff calculations based on Serbian LFS (October 2008) and Household Budget Survey (HBS, 2008).

Lost revenues from informal workers earning less than RSD 200,000 annually seem significantly smaller. Even under the current financing rules of minimum social security contributions—which, if paid as required by law, would make most jobs in this income range not economically viable—the lost revenues for social security institutions do not seem overwhelmingly high. Hence, the fiscal impact of any reform of minimum social security contributions might not be substantial. The additional fiscal revenues generated from formal mini-jobs and midi-jobs would most likely be small.

Nevertheless, reforming the minimum social security contribution floor and the design of social assistance and family benefits could help to overcome social exclusion, formalize the informal, and activate the inactive. Because of the high informality and inactivity rate, a substantial share of the Serbian working age population is not covered by old-age, disability, and unemployment insurance. Since these are earnings-related benefits, extending coverage will not necessarily increase the future deficit of these social security institutions. Any fiscal impact from extending coverage, though, has to be carefully evaluated, in particular with regard to any minimum entitlements (like a minimum pension). At the same time, bringing the excluded into social security does create additional revenues, can help to improve the fiscal position of pay-as-you-go schemes (especially the old-age pension), and might also reduce the future burden on social assistance. With regard to health insurance, the fiscal impact should be unambiguously positive because most of the informal and the inactive are covered without

contributing even today.¹⁰ In addition, the administrative burden on the National Employment Service (NES) from administering free health insurance for the unemployed could be alleviated substantially.

Only about 40 percent of the registered unemployed are actively seeking jobs, the rest are either informally employed or inactive. In 2008, about 800,000 people were registered as unemployed with NES. The LFS suggests that only 39 percent of the registered unemployed are actually unemployed (see Table 10). About 21 percent of the registered unemployed, though, were informally employed and another 33 percent were inactive.

The main motivation to register as unemployed is to obtain free health insurance coverage. Serbian law grants free health insurance to anyone who earns less than RSD 16,000 per month. Since the informally employed and the inactive have no formal income on record (other than capital income or income from property), they are all entitled to free health insurance. In order to obtain free health insurance, though, the health insurance fund (HIF) requires documentation that the applicant is unemployed and hence requires him or her to register as unemployed. Not surprisingly, almost 95 percent of the informal workers who register as unemployed do not receive health benefits at work (see Table 10). In addition, many other entitlements to benefits on municipal level—like, for example, entitlements to lower public transportation fares, school books for children, subsidies for school tuition fees—require documentation that the applicant is registered as unemployed.

Registering the unemployed puts a serious administrative constraint on NES. Currently, NES has only about 144 case worker employed to assist the unemployed. This puts the number of cases per case worker at over 5,000. Most EU countries have less than 300 cases per case workers. Registering such a large number of unemployed puts a significant constraint on these case workers as they spend most of their time with registry work as opposed to supporting the genuinely unemployed who are seeking jobs.

In conclusion, informal employment leads to significant fiscal revenues losses and puts an administrative burden on NES. A comprehensive estimate on lost fiscal revenues is not possible at this point, but might be feasible after further research. The estimates that are available at this point suggest that social security institutions could boost their revenues from contributions by about 5 percent if labor income from informal workers earning more than RSD 200,000 annually were properly declared. The impact from additional revenues collected from formal mini-jobs or midi-jobs are likely to be significantly smaller. At the same time, bringing the informal into the formal sector and activating the inactive—even at low earning levels—would help to decrease social exclusion, in particular with regard to old-age pension. It could therefore help to reduce future old-age poverty. Since entitlements to pensions are earnings-related, the fiscal impact due to future entitlement would likely be small, yet a careful evaluation of any policy reform is necessary, in particular concerning any minimum entitlements. Health insurance coverage is already high even today, because free health insurance is easy to obtain by registering as unemployed. Any reform that would increase formal employment will therefore be fiscally favorable because no new entitlements are created while revenues are increased. At the same time,

¹⁰ Only about 8 percent of the population is currently not covered by the Serbian health insurance fund (HIF).

NES would profit from any reform that decreases its administrative burden stemming from free health insurance for the unemployed.

5 Reform options

Three main reform options to decrease informal employment and to activate the inactive are proposed: (i) to make formal work pay for low-wage earners; (ii) to genuinely means-test any entitlements to free health insurance or other municipal entitlements; and (iii) to step-up inspections and enforcement.

The two main policy tools to make formal work pay are to decrease labor taxation at the lower wage levels and to reform benefit design for social assistance and family benefits. With regard to lowering the tax wedge, the minimum social security contribution could be adjusted by actual hours worked. In other words, someone working half time at the legal minimum wage would also only pay 50 percent of the minimum social security contribution. This is the case in almost all EU and OECD countries, and also in other countries in the region like Bosnia and Herzegovina and Macedonia. Other options would be to introduce new policies like wage subsidies, social security contribution credits, or so-called in-work benefits (cash benefits conditional on formal work) for low-wage earners. These latter policies, though, risk a certain amount of stigmatization for workers who benefit. Another way would be to channel these credits or subsidies to workers via the personal income tax as tax credits. A similar mechanism might have to be found for employers who hire low-wage earners.

With regard to reforming the design of social assistance and family benefits, the key is to keep the marginal effective tax rate in mind when designing benefit withdrawal. In other words, beneficiaries of social assistance and family benefits would gain from additional formal work—that is, any additional formal wage would also increase their net income, *including* benefits. If this is not the case, additional formal work does not pay, and beneficiaries will prefer to not work at all, or only informally, or underreport earnings. In order to reform benefits along these lines, withdrawal of benefit has to phase in slowly as income increases, so no sudden drops in net income occur. The German Hartz IV reforms offer a good example on how this can be achieved at lower wage levels.¹¹

Entitlements to free health insurance could be limited to the poor, and the entitlement be based on a means test, not an income test. It is important that the poor have access to free health insurance as sickness is a serious economic risk that can further deepen poverty. Yet, if free health insurance is easily accessible also by those who can afford to contribute to health insurance, it decreases the value of formal work and increases incentives to work informally. It is therefore important to base the decision on who should have access to free health insurance on the means that a household has at its disposal, and not formal income or formal employment status (like registered unemployment). This requires robust means-testing mechanisms as opposed to income testing. This can either be done by proxy-

¹¹ Arguably, the role of social assistance in providing disincentives for formal work for a large number of people might be limited. About 170,000 people—including children and elderly—currently benefit from social assistance in Serbia, which is about 2.5 percent of the population, although the numbers have been increasing rapidly in recent months. In any case, as the social safety net of Serbia is being modernized, the disincentive effect and the marginal effective tax rate should be kept in mind.

means testing—like, for example, looking at electricity consumption—or by frequent contacts between a social worker and the applicant.

Finally, it might be advisable to step up labor and tax inspections. Macedonia recently successfully implemented reforms along these lines. The amount of inspections, in particular of medium-sized companies in the service sector, has been increased significantly. At the same time, the maximum amount of penalties for violations was increase considerably. Although no rigorous impact evaluation is available on how inspections contributed, the number of people paying income tax and social security contributions increased by about 7 percent per year since 2006 (see Table 11). More impressively, the number of people filing tax reports on non-wage income (like the self-employed) in Macedonia increased almost 13-fold within three years, from 20,000 in 2006 to 150,000 in 2009.

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Annex I: Data Integration Methodology

Introduction

Essentially, two approaches to the integration of disparate data sources can be discerned, statistical matching and exact matching (Denk and Hackl, 2004). *Statistical matching* (also known as *data fusion*) aims at the combination of sources lacking a substantial overlap with regard to observed entities such as survey respondents. Therefore, this method merges sources that predominantly contain data on *different* respondents, for instance surveys from distinct cross-sectional household surveys. Such surveys will hold data on the same individuals only by chance. In general, data resulting from a statistical matching procedure are made up of data from *similar* respondents and thus do not represent *real-world* respondents, but rather what is referred to as *synthetic* respondents. *Exact matching* (also referred to as record or data linkage) can in contrast be used for linking data from different sources representing the very same real-world entities. Obviously, exact matching solves the integration problem of the overlapping data better than data fusion, since it tries to identify data representing the very same entities, whereas statistical matching settles for the identification of similar entities. In cases where exact matching procedures can be applied they should therefore be used. However, there are many applications that cannot make use of data sources that can be linked exactly. The case of merging income data from a household budget survey to a labor force survey containing no or insufficient information on income for making inferences on informality is one of these applications and the reason why we will now examine statistical matching as used for this paper in greater detail.

Statistical matching originated in the field of economics, initially primarily targeting at the combination of income data and data on tax returns (e.g., Okner, 1972, 1974, Radner, 1978, Radner and Muller, 1977). Since then the technique has been used extensively in micro-simulation modelling to examine the impact of policy changes on population subgroups, and in particular on tax simulation studies. Statistical matching can be regarded as a particular type of donor-based imputation, i.e. the filling of gaps in a dataset by using data from a corresponding donor. It enriches a recipient dataset with variables only available in a donor dataset by combining observations from the two datasets based on the similarity of matching variables that are available in both datasets. The matching process gives rise to completed observations with variables from the donor set that were completely missing in the recipient set. In this context, two distinctions have to be made with respect to the matching procedure, constrained and unconstrained matching. In *constrained matching*, every recipient as well as every donor observation is included in the final dataset with a sample weight identical to its sample weight before matching in order to preserve the distributions of the two datasets. *Unconstrained matching* does not place such a restriction on the matches. In addition to the distinction with respect to constraints, the following categories of statistical matching procedures can be discerned (Weber and Denk, 2010).

Equivalence class matching

Equivalence class matching subdivides the datasets into comparable subsets (= equivalence classes) of respondents by means of similarity of matching variables or cluster analysis. To each recipient in a subset one or more donors from the same subset are assigned. Donors may be selected based on distance measures or randomly (Okner, 1972). Multiple donors can be combined by some aggregation

function depending on the type of variable. Equivalence class matching corresponds to cold-deck donor-based imputation of completely missing variables.

Regression-based matching

Regression-based matching links recipients and donors based on the similarity of additional variables estimated in both datasets (Raessler, 2002). Typically, these additional variables are estimated by means of regression models with the common matching variables as regressors and the (dis-)similarity quantified in terms of Mahalanobis distance. Regression-based matching is comparable to model-based imputation with two datasets, but instead of the estimated value, the value of the nearest potential donor with respect to the estimated variables is commonly used.

Propensity score matching

Propensity score matching (Rosenbaum, Rubin, 1983) has originally been designed in a different context but can be used for identifying donors in standard imputation or statistical matching situations. To this end, the propensity score is defined as the conditional probability of an observation being contained in the dataset of donors or the dataset of recipients given a set of variables available in both datasets. This propensity score is usually estimated via a logistic regression on these common (matching) variables. The matching can be carried out by assigning to each recipient the nearest donor in terms of the propensity score.

In the application of statistical matching for this paper, an unconditional matching procedure was chosen that made use of propensity scores. The reason for choosing an unconditional matching procedure was the fact that the distribution of the target variables on income could be maintained with only minor deviations from the distribution in the donor dataset. Consequently, additional restrictions were not required. With respect to the (dis-)similarity measure for the actual matchmaking, the propensity score method was favored over a Mahalanobis matching that provided similarly good results in terms of the distribution of the target variables in the donor and the recipient datasets due to the broad acceptance of propensity scores. The common variables chosen from the two datasets are strongly related to the demographics and occupation of the respondents in both household survey datasets but also to characteristics of the household as well as the household head of the respondent's household in order to match individuals that live in similar households. Some of the common variables had to be generated specifically for the purpose of matching identically defined variables in both datasets based on variables that pre-existed in both datasets but had slightly different definitions.

Annex II: Tables

Table 1: The Serbian population aged 15 or older by employment status and age group (2008)

Age group	All <i>employed</i>	Employed		Unemployed	Inactive	Total
		<i>Formally employed</i>	<i>Informally employed</i>			
15-24	191,298	119,318	71,981	114,382	598,176	903,857
25-39	911,309	765,254	146,055	181,797	247,867	1,340,972
40-64	1,543,615	1,217,363	326,252	161,025	1,011,050	2,715,690
65+	159,085	57,436	101,649	0	1,230,724	1,389,809
Total	2,805,307	2,159,371	645,937	457,205	3,087,816	6,350,328

Source: Serbian Labor Force Survey (LFS, October 2008)

Table 2: Key labor market indicators for the Serbian population aged 15 or older by age group (percent, 2008)

Age group	Activity rate (labor force as share of population)	Employment rate (employed as share of population)	Informality rate (informal as share of employed)	Unemployment rate (unemployed as share of labor force)
15 to 24	33.8%	21.2%	37.6%	37.4%
25 to 39	81.5%	68.0%	16.0%	16.6%
40 to 64	62.8%	56.8%	21.1%	9.4%
65+	11.4%	11.4%	63.9%	0.0%
Total	51.4%	44.2%	23.0%	14.0%

Source: Serbian LFS (October 2008)

Table 3: Share of formal and informal workers by ownership type of production unit (percent of all employed, 2008)

Ownership type	Formal	Informal	Total
Private Sector	67.9%	32.1%	100.0%
<i>Private - registered</i>	84.0%	16.0%	100.0%
<i>Private - non-registered</i>	2.3%	97.7%	100.0%
Public Sector	99.9%	0.1%	100.0%
<i>State</i>	99.9%	0.1%	100.0%
<i>Socially owned</i>	100.0%	0.0%	100.0%
Other	93.2%	6.8%	100.0%
Total	77.0%	23.0%	100.0%

Source: Serbian LFS (October 2008)

Table 4: Informal workers by sector and professional status (share of total informal employment, 2008)

Professional Status	Non-agricultural	Agricultural	Total
Owner/co-owner of an enterprise	0.3%	0.2%	0.5%
Owner/co-owner of a shop	1.0%	0.2%	1.2%
Liberal profession and own account worker	10.9%	1.4%	12.3%
Individual farmer	0.0%	25.4%	25.4%
Employee	17.1%	6.2%	23.3%
Unpaid family worker	3.0%	34.4%	37.3%
Total	32.2%	67.8%	100.0%

Source: Serbian LFS (October 2008)

Table 5: Informal workers by formality status, age group, and educational attainment (share of total informal or formal employment, 2008)

Highest educational attainment	15 to 24	25 to 39	40 to 64	65+	Total
Informal					
No education	0.0%	0.1%	1.1%	2.4%	3.5%
Primary	0.8%	1.3%	10.2%	9.0%	21.3%
Secondary	10.3%	20.4%	37.8%	3.8%	72.4%
Tertiary	0.0%	0.8%	1.5%	0.5%	2.8%
Total informal	11.1%	22.6%	50.5%	15.7%	100.0%
Formal					
No education	0.0%	0.0%	0.1%	0.2%	0.3%
Primary	0.0%	0.2%	1.4%	1.5%	3.1%
Secondary	5.1%	27.1%	40.7%	0.8%	73.6%
Tertiary	0.4%	8.1%	14.2%	0.3%	23.0%
Total formal	5.5%	35.4%	56.4%	2.7%	100.0%

Note: Shaded cells indicate a considerably higher share of that group among informal workers when compared to the same group among formal workers.

Source: Serbian LFS (October 2008)

Table 6: Employment status of the Serbian population aged 15 or older over time (as share of working age population)

	April 2008	October 2008	April 2009	October 2009	Percent change
Employed	44.7%	44.2%	41.6%	40.8%	-8.7%
<i>Formally employed</i>	34.2%	34.0%	32.4%	32.4%	-5.1%
<i>Informally employed</i>	10.5%	10.2%	9.2%	8.4%	-20.3%
Unemployed	6.9%	7.2%	7.7%	8.1%	18.4%
Inactive	48.4%	48.6%	50.7%	51.1%	5.4%

Source: Serbian LFS (April 2008 to October 2009)

Table 7: Activity rate of the population aged 15 or older for select European countries (2009)

	Activity rate 2009
Iceland	70.9%
Norway	66.4%
Netherlands	65.6%
Sweden	63.6%
Portugal	62.0%
Ireland	61.8%
Cyprus	60.9%
Latvia	60.8%
Estonia	60.6%
Finland	60.4%
Austria	60.4%
Slovenia	59.6%
Germany	59.3%
Spain	59.0%
Slovakia	58.8%
Lithuania	57.7%
Luxembourg	56.7%
Macedonia	55.1%
Romania	54.4%
France	54.3%
Poland	53.5%
Greece	51.6%
Croatia	51.5%
Malta	50.0%
Hungary	49.2%
Serbia	48.9%
Italy	48.4%
Turkey	46.1%
Bosnia and Herzegovina	43.9%

Source: Eurostat and Serbian LFS (October 2009)

Table 8: The tax wedge for singles with no children at various levels of average wage for select countries (2008, unless otherwise indicated)

	Tax wedge at 33 percent of average wage¹	Tax wedge at 50 percent of average wage¹	Tax wedge at 100 percent of average wage¹	Progressivity (percentage point change between 33 and 100 percent level)
Sweden	41.8%	44.6%	47.9%	6.1%
Hungary	39.5%	43.4%	54.1%	14.6%
Romania	37.9%	39.9%	42.4%	4.5%
Bosnia – Federation²	37.8%	39.5%	41.8%	3.9%
Serbia²	36.7%	38.0%	39.3%	2.6%
Germany	36.3%	43.0%	51.5%	15.2%
Belgium	36.0%	48.5%	55.7%	19.7%
Lithuania	36.0%	38.9%	41.6%	5.6%
Finland	35.5%	38.0%	44.9%	9.4%
Czech Republic	35.2%	36.8%	43.5%	8.3%
Bulgaria	35.1%	35.1%	35.1%	0.0%
Poland	35.0%	37.4%	39.6%	4.6%
Latvia	34.7%	38.2%	41.6%	6.9%
Greece	34.4%	34.4%	41.5%	7.1%
Estonia	34.0%	36.8%	39.5%	5.6%
Austria	33.5%	39.8%	48.5%	15.0%
Slovenia	32.9%	35.0%	42.9%	10.0%
France	32.5%	35.0%	49.3%	16.8%
Netherlands	32.1%	37.5%	45.1%	13.0%
Italy	31.5%	36.7%	45.8%	14.3%
Slovak Republic	31.4%	33.2%	38.8%	7.4%
Bosnia - Republika Srpska²	31.1%	32.8%	34.5%	3.4%
Macedonia²	28.5%	30.9%	33.2%	4.8%
Portugal	28.1%	30.3%	37.3%	9.2%
Spain	28.0%	29.3%	38.0%	9.9%
Norway	27.5%	31.1%	37.5%	10.0%
Japan	26.0%	27.3%	29.5%	3.5%
United States	22.6%	25.7%	30.1%	7.5%
United Kingdom	19.9%	26.6%	32.8%	12.9%
Switzerland	15.9%	26.9%	31.7%	15.8%
Ireland	7.8%	14.0%	27.0%	19.2%

Notes:

1. The tax wedge is defined as the share of income tax and social security contributions by employers and employees over total labor costs. The numbers presented in this table refer to a single earner with no children who receives average wage and works 33 or 50 percent part-time or full-time. Alternatively, in most—but not all—countries this can be interpreted also as the tax wedge of a single earner with no children, working full-time, but receiving 33, 50, or 100 percent of average wage. In the latter case, working full time at 33 percent of average wage might be below the legal minimum wage.

2. Values refer to 2009.

Source: Author's calculations based on OECD Tax and Benefit model.

Table 9: The tax wedge for a one-earner couple with two children at various levels of average wage for select countries (2008, unless otherwise indicated)

	Tax wedge at 33 percent of average wage¹	Tax wedge at 50 percent of average wage¹	Tax wedge at 100 percent of average wage¹	Progressivity (percentage point change between 33 and 100 percent level)
Sweden	41.8%	44.6%	47.9%	6.1%
Hungary	39.5%	43.4%	54.1%	14.6%
Bosnia - Federation²	37.8%	37.8%	37.9%	0.1%
Serbia²	36.7%	38.0%	39.3%	2.6%
Finland	35.5%	38.0%	44.9%	9.4%
Bulgaria	35.1%	35.1%	35.1%	0.0%
Greece	34.4%	34.4%	39.8%	5.4%
Lithuania	34.4%	37.8%	41.1%	6.7%
Poland	33.7%	33.7%	33.7%	0.0%
Germany	33.4%	33.4%	42.8%	9.4%
Romania	32.9%	35.3%	40.9%	7.9%
Slovenia	32.9%	32.9%	35.8%	2.9%
France	32.5%	34.1%	45.1%	12.7%
Italy	31.5%	31.5%	40.2%	8.7%
Slovak Republic	31.4%	31.4%	33.2%	1.8%
Bosnia - Republika Srpska²	30.6%	30.6%	33.0%	2.4%
Macedonia²	28.5%	30.9%	33.2%	4.8%
Portugal	28.1%	28.1%	31.0%	2.9%
Spain	28.0%	28.0%	32.0%	4.0%
Estonia	26.9%	26.9%	31.3%	4.4%
Latvia	26.7%	26.7%	34.5%	7.8%
Netherlands	26.4%	33.4%	43.1%	16.7%
Belgium	23.6%	35.7%	47.0%	23.4%
Japan	22.6%	22.5%	26.1%	3.6%
Austria	22.0%	32.3%	44.7%	22.7%
Norway	20.9%	26.8%	35.3%	14.4%
United Kingdom	19.9%	26.6%	32.8%	12.9%
Czech Republic	17.7%	23.7%	31.0%	13.3%
United States	14.9%	11.9%	17.9%	2.9%
Switzerland	12.6%	15.2%	32.9%	20.3%
Ireland	7.8%	12.2%	18.5%	10.6%

Notes:

1. The tax wedge is defined as the share of income tax and social security contributions by employers and employees over total labor costs. The numbers presented in this table refer to a one-earner couple with two children who receives average wage and works 33 or 50 percent part-time or full-time. Alternatively, in most—but not all—countries this can be interpreted also as the tax wedge of a one-earner couple with two children, working full-time, but receiving 33, 50, or 100 percent of average wage. In the latter case, working full time at 33 percent of average wage might be below the legal minimum wage.

2. Values refer to 2009.

Source: Author's calculations based on OECD Tax and Benefit model.

Table 10: Employment status and social security status of the Serbian population aged 15 and older (percent, 2008)

	Formally employed	Informally employed	Unemployed	Inactive	Total
Population aged 15 and older	34.0%	10.2%	7.2%	48.6%	100.0%
Registered w/ National Employment Service					
yes	8.3%	20.8%	38.5%	32.5%	100.0%
<i>of which receive no health insurance at work</i>	51.3%	94.6%			
no	43.2%	8.6%	1.5%	46.6%	100.0%
aged 75 and older	2.1%	4.3%	0.0%	93.6%	100.0%

Source: Serbian LFS (October 2008)

Table 11: Number of tax payers in contributors to social security in Bosnia and Herzegovina – Republika Srpska, Macedonia, and Serbia

	2006	2007	2008	2009	Average annual change
Bosnia and Herzegovina - RS					
Number of registered payers of taxes and contributions	n.a.	974,976	1,121,126	1,197,456	10.9%
Macedonia					
Number of registered contributors to pension fund	394,882	424,338	451,491	n.a.	6.9%
Individuals filing tax reports on non-wage income	19,447	77,017	120,396	150,569	125.8%
Serbia					
Number of registered payers of taxes and contributions	n.a.	2,188,503	2,229,236	2,162,145	-0.6%

Note: n.a for not available

Source: Serbian LFS (October 2008)