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**Regulating the sharing economy to prevent the growth of
the informal sector in the hospitality industry**

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Regulating the sharing economy to prevent the growth of the informal sector in the hospitality industry

Purpose

To tackle one of the main negative consequences of the sharing economy, namely the growth of the informal sector, the aim of this paper is to evaluate for the first time the impacts of the informal sector on the hospitality industry, and then to discuss what needs to be done to prevent the further growth of the informal sector in this industry.

Methodology/approach

To evaluate the impacts of the informal sector on the hospitality industry, data is reported from 30 East European and Central Asian countries collected in 2013 in the Business Environment and Enterprise Performance Survey.

Findings

The finding is that 23% of hotels and restaurants in Eastern Europe and Central Asia report competing against unregistered or informal operators and 13% view these informal competitors as a major or severe obstacle. The larger the business, the greater is the likelihood that the informal sector is considered their biggest obstacle.

Practical Implications

To prevent the further growth of the informal sector in the hospitality industry, regulation of the sharing economy will be required. To achieve this, it is shown that state authorities need to adopt both direct control measures that alter the costs of operating in the informal sector and the benefits and ease of operating formally, as well as indirect control measures that reduce the acceptability of operating in the informal sector.

Originality/value

This is the first paper to evaluate the impacts of the informal sector on the hospitality industry and to outline the policy measures required to prevent its further growth with the advent of the sharing economy.

Keywords: informal economy; sharing economy; tax evasion; tax morale; hospitality industry; tourism; Eastern Europe; Central Asia.

Introduction

In recent decades, there has been recognition that the informal sector is a persistent and extensive phenomenon across the world (ILO, 2013; Williams, 2014a, 2015). This has negative implications for governments, workers, businesses and consumers. Governments lose tax revenue that could provide citizens with better social protection, health and educational services. Workers lose their entitlement to loans, pensions and social protection, legitimate businesses witness unfair competition and consumers lack any guarantees that health and safety regulations have been followed (Eurofound, 2013; Williams, 2014b). Although it is commonly asserted that the informal sector is particularly prevalent in the hospitality industry (Thomas et al., 2011), and the advent of the sharing economy is widely assumed to be leading to greater informality in the hospitality industry (European Commission, 2016a,b,c), no studies have so far evaluated the impacts of the informal sector

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3 on the hospitality industry. To fill this lacuna, therefore, the aim of this paper is to evaluate
4 for the first time the impacts of the informal sector on the hospitality industry, and then to
5 discuss what needs to be done to prevent the further growth of the informal sector in this
6 industry.

7
8 To commence, therefore, the next section reviews the literature to show that despite
9 the voluminous scholarship on both the hospitality industry as well as the informal sector,
10 and despite the recognition that one of the main negative consequences for the hospitality
11 industry of the sharing economy is the growth of the informal sector, a dearth of studies exist
12 on the impacts of the informal sector on the hospitality industry. To start to fill this gap,
13 therefore, the third section reports the data and methods used to evaluate the impacts of the
14 informal sector on the hotels and restaurants sector, whilst the fourth section reports the
15 results from hotels and restaurants in 30 East European and Central Asian countries surveyed
16 in 2013. Given the rapid growth of the sharing economy, the fifth and final section discusses
17 what needs to be done to prevent the further expansion of the informal sector in this industry.
18 This will argue that there is a need for countries to adopt a mix of both direct control
19 measures that change the costs of operating in the informal sector and benefits and ease of
20 operating formally, as well as indirect control measures that alter the acceptability of
21 operating in the informal sector.
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23

24 **The informal sector, sharing economy and hospitality industry**

25
26 The informal sector includes any paid activity which is not declared to the authorities for tax,
27 social security and/or labour law purposes (European Commission, 2014; OECD, 2012;
28 Williams and Schneider, 2016). Activities in the informal sector are therefore legal in all
29 respects except that they are not declared to the public authorities for tax, social security
30 and/or labour law purposes. Hence, if somebody rents a room on a sharing economy platform
31 such as Airbnb, and perhaps also offers meals, but does not declare the income for tax
32 purposes, then they are operating in the informal sector.
33

34 Extensive bodies of scholarship exist on both the hospitality industry (e.g., Kan et al.,
35 2016; Kim et al., 2016; Köseoğlu et al., 2016; Sharma et al., 2016) as well as the informal
36 sector (e.g., Eurofound, 2013; Polese et al., 2016; Sauka et al., 2016). However, an extensive
37 review of the literature on the hospitality industry reveals that the informal sector is seldom if
38 ever considered (Thomas et al., 2011). The only known notable exceptions are four studies
39 which variously analyse informal practices among Romanian rural tourists (Rădan-Gorska,
40 2013), street vendors in Indonesia (Timothy and Wall, 1997), backpacker tourists (Sørensen
41 and Babu, 2008), and in the hospitality industry in the UK city of Leeds (Williams and
42 Thomas, 1996). Even a cursory glance at the hospitality industry however, reveals that the
43 informal sector may well be extensive.
44

45 On the one hand, there are registered businesses operating in the tourism and
46 hospitality industry (e.g., hotels, restaurants) that either do not declare all of their transactions
47 (e.g., the full number of nights visitors stay or food supplied to their guests) or reduce their
48 tax and social security payments and evade labour laws either by employing undeclared
49 workers or by paying their formal employees two wages, namely an official declared salary,
50 which is detailed in a formal written contract, and an additional undeclared 'envelope wage'
51 via a verbal unwritten agreement. Such a verbal unwritten agreement to pay an additional
52 undeclared (envelope) wage may simply deviate from the formal contract by stipulating that
53 the employee will be paid more for their regular employment than is in the formal written
54 contract. More usually however, this verbal agreement attaches additional conditions to the
55 employee receiving this envelope wage, such as that they will not take their full entitlement
56 to annual leave, that they will work more hours per week than is stipulated in the written
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3 formal contract (which might take the employee over the hours stipulated in any working
4 hours directive or result in them being paid below the minimum hourly wage) or the job
5 content may differ to that stated in the formal contract (Horodnic, 2016; Williams and
6 Horodnic, 2015a, 2016a). Considering the seasonal nature of the hospitality industry, the
7 informal labour practices of employing wholly undeclared labour or paying formal
8 employees 'envelope wages', not least for overtime worked during the high season, may well
9 be extensive.

10
11 On the other hand, there are unregistered businesses operating in the hospitality
12 industry, such as tour guides, or particular businesses selling services to tourists (e.g., fishing
13 trips, overnight accommodation in family homes). In the hospitality industry, these may well
14 be small-scale enterprises (i.e., small guesthouses, restaurants and shops), and may well be
15 family businesses (Gladstone, 2005; Wahnschafft, 1982).

16
17 In recent years, moreover, the hospitality industry has arguably witnessed a
18 significant expansion of informality due to the advent of the 'sharing economy' (Choi et al.,
19 2015; Heo, 2016; Juul, 2015; Koolhoven et al., 2016; Zekanović-Korona, 2014). The 'sharing
20 economy' refers to collaborative platforms on the internet which allows assets or services to
21 be shared between private individuals (European Commission, 2016c), and the hospitality
22 industry is arguably one of the industries most affected by these platforms, especially with
23 regard to the accommodation sector (Guttentag, 2015; Juul, 2015; Pairolero, 2016; Vaughan
24 and Daverio, 2016). These digital platforms connect travellers with individuals who wish to
25 rent a portion of their primary residence (e.g. a sofa, a spare room), their whole primary
26 residence (e.g. whilst they are not present) or a secondary residence (e.g. a holiday home).
27 They include peer-to-peer rental platforms (e.g. Airbnb, Wimdu, 9flats, Gloveler), home-
28 swapping platforms (e.g. LoveHomeSwap) and online-only vacation rental platforms (e.g.
29 HomeAway).

30
31 This sharing economy is a sizeable realm and rapidly expanding. The European
32 Commission estimate the sharing economy as a whole to have generated €28bn (£21.6bn) in
33 revenues in 2015 across Europe, which is double the figure of 2014, and it forecasts that this
34 may rise to €160bn in coming years (European Commission, 2016c). Indeed, not only have
35 half (52 per cent) of respondents in a recent Eurobarometer survey heard of such platforms
36 but 17 per cent have used them, although participation is higher among younger and more
37 highly educated respondents living in urban areas who are self-employed or employees
38 (European Commission, 2016a,b). In the accommodation sector, Airbnb, established in 2008
39 in the USA, provides a platform for individuals who wish to rent their spare room or entire
40 home to access potential customers. Some seven times larger than its nearest competitor,
41 Wimdu, Airbnb lists some 2 million properties in 191 countries, with 16 million guests using
42 the platform in 2015 compared with 45,000 in 2010 (European Commission, 2016c,d). Its
43 revenue model works by charging a flat commission fee from hosts and a small transaction
44 fee to travellers (European Commission, 2016d).

45
46 Given the rapid growth of these platforms, traditional accommodation providers in the
47 hospitality sector widely view them as a threat and more importantly so far as this paper is
48 concerned, as unfair competition. Not only are these providers not always subject to the same
49 legal and safety regulations (Heo, 2016; Juul, 2015) but those who use these platforms to
50 provide services are also seen as more likely to be operating in the informal sector. Until
51 now, however, the only evidence of this is a study conducted by TNS Sofres in France which
52 reveals that only 15% of the participants in a market survey reported the income through their
53 transactions in the sharing economy (De Groen and Maselli, 2016).

54
55 Here, therefore, we start to fill this gap in the literature by evaluating for the first time
56 the impacts of the informal sector on the hospitality industry. This will set the scene for a
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discussion of how to prevent the further growth of the informal sector in this industry, with an emphasis on tackling the informal sector in the sharing economy.

Data and methods

To evaluate the impacts of the informal sector on the hospitality industry, we here analyse data from 30 Eastern European and Central Asian countries from the fifth round of the Business Environment and Enterprise Performance Survey (BEEPS V, 2013), conducted by the World Bank and the European Bank for Reconstruction and Development. Overall, this survey involved 15,883 interviews with firms in the manufacturing and service sectors in these countries. In each country, a harmonised questionnaire was used and a common stratified random sampling methodology to ensure that the sample was representative of the non-agricultural private sector at the national level. To do this, the sample was stratified by sector, firm size, and geographical location. Following the BEEPS methodology, we here use weighting to ensure that the sample is proportionate to the universe of the population in each country.

The dependent variable here used is dummy variable that evaluates the impacts of the informal sector on the hotels and restaurants sector, with recorded value 1 for firms in the hotels and restaurants sector in Eastern Europe and Central Asia which consider the practices of competitors in the informal sector as their biggest obstacle and with recorded value 0 otherwise.

Drawing upon past studies that identify the variables which influence the prevalence and impacts of the informal sector (Williams and Horodnic, 2015a,b, 2016a,b; Williams and Kedir, 2016; Williams et al., 2016a), the independent variables selected to control for the impacts of the informal sector are as follows:

- *Firm size*: a categorical variable grouping hotels and restaurants by their firm size with value 1 for micro (up to 4 permanent full-time employees), value 2 for small (5 to 19 permanent full-time employees), value 3 for medium (20 to 99 permanent full-time employees), and value 4 for large (more than 99 permanent full-time employees).
- *Main clients*: a categorical variable for the main clients to which the establishment sold its main product or service with value 1 for local (clients from the same municipality where establishment is located), value 2 for national (clients from the country where establishment is located), and value 3 for international (clients outside country where establishment is located).
- *Subsidies*: a dummy variable with recorded value 0 for firms receiving over the last three years subsidies from the national, regional or local governments or European Union sources and with recorded value 1 otherwise.
- *Cheque or savings account*: a dummy variable with recorded value 0 for managers/ owners/ directors who answered 'yes' to the question: 'At this time, does this establishment have a cheque or savings account?' and with recorded value 1 otherwise.
- *Line of credit or loan*: a dummy variable with recorded value 0 for managers/ owners/ directors who answered 'yes' to the question: 'At this time, does this establishment have a line of credit or a loan from a financial institution?' and with recorded value 1 otherwise.
- *Part of a larger firm*: a dummy variable with recorded value 0 for a firm which is part of a larger firm and with recorded value 1 for an independent firm.
- *Females amongst the owners*: a dummy variable with recorded value 0 for firms having females amongst the owners and with recorded value 1 for firms not having females amongst the owners.

- *New or significantly improved products or services*: a dummy variable with recorded value 0 for firms introducing during the last three years new or significantly improved products or services and with recorded value 1 otherwise.
- *New or significantly improved organizational or management practices or structures*: a dummy variable with recorded value 0 for firms introducing during the last three years new or significantly improved organizational or management practices or structures and with recorded value 1 otherwise.
- *IT&C - High-speed Internet connection*: a dummy variable with recorded value 0 for firms having a high-speed Internet connection and with recorded value 1 for firms not having this facility.

To report the findings, firstly a descriptive analysis is provided. Secondly, and as the dependent variable is a dummy, we employ a logistic regression analysis to explore the firms whose managers/owners/directors consider the practices of competitors in the informal sector to be their biggest obstacle. Further details about these variables are available in the Appendix.

Results

Of the 15,883 interviews conducted with firms in the manufacturing and service sectors in these 30 East European and Central Asian countries in 2013, 623 businesses were interviewed in the hotels and restaurants sector. Nearly one quarter (23.3 per cent) of these businesses in the hotels and restaurants sector assert that they compete against unregistered or informal firms in these East European and Central Asian countries. Nevertheless, as Table 1 displays, the phenomenon is not evenly distributed across countries. Whilst 76 per cent of firms assert that they compete against unregistered or informal firms in Bosnia-Herzegovina, 72 per cent in Kosovo and 63 per cent in Kazakhstan, just 7 per cent state that this is the case in Azerbaijan, 4 per cent in Uzbekistan and 2 per cent in Armenia.

INSERT TABLE 1 ABOUT HERE

Analysing the level of threat that the informal sector represents to businesses in the hotel and restaurant sector, Table 2 reports whether hotels and restaurants view the practices of competitors in the informal sector as an obstacle to their current operations. In Eastern Europe and Central Asia as a whole, just 54 per cent of the hotels and restaurants state that the informal sector is not a threat (i.e., obstacle to their operations). For 46 per cent of businesses in the hotel and restaurant sector, therefore, informality is a threat, with 15 per cent viewing the informal sector as a minor obstacle, 11 per cent a moderate obstacle, 11 per cent a major obstacle and 2 per cent a severe obstacle.

INSERT TABLE 2 ABOUT HERE

Again, however, marked cross-national variations exist in the level of threat that the informal sector represents to businesses in the hotel and restaurant sector. In general, in countries with the lowest level of competition between formal and unregistered or informal firms, informal practices are not seen as a marked threat. For instance, no hotel or restaurant in Armenia, Belarus and Hungary asserted that informal competitors were a major or severe obstacle and just 1 per cent of hotels and restaurants in Azerbaijan found informal competitors to be a major or severe obstacle. In contrast, 53 per cent of firms in Bosnia-Herzegovina found informality to be a major or severe obstacle, 69 per cent in Kosovo, and 61 per cent in Kazakhstan. Indeed, the countries where informality is most likely to be seen by hotels and

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3 restaurants as a major or severe obstacle are Romania (48 per cent), Macedonia (40 per cent),
4 Czech Republic (39 per cent), Bulgaria (30 per cent), Latvia (21 per cent), Albania (19 per
5 cent), Lithuania (16 per cent), and Croatia (15 per cent). Indeed, in 6 out of the 11 East
6 European countries that are EU members, the percentage of firms in the hotel and restaurant
7 sector viewing the practices of informal competitors as a major or severe obstacle are above
8 the mean across Eastern Europe and Central Asia of 13 per cent.

9
10 Is it the case, however, that the informal sector is the most common major obstacle
11 faced by firms in Eastern Europe and Central Asia? Table 3 reports the commonality with
12 which various obstacles were cited by firms in the hotel and restaurant sector. In this sector, it
13 is tax rates that are most frequently cited as the biggest obstacle faced by firms, followed by
14 the practices of competitors in the informal sector (cited by 10.5 per cent). Indeed, whether
15 one examines solely the hotel and restaurant sector, or all firms surveyed, the similar finding
16 is that the practices of informal competitors is deemed the biggest obstacle faced for some 11
17 per cent of firms. Nevertheless, a closer investigation reveals that the informal sector was the
18 second most frequently cited biggest obstacle among hotels and restaurants, whilst it was
19 ranked third behind access to finance by firms across all sectors. Compared with other
20 obstacles faced by firms, therefore, the practices of competitors in the informal sector are an
21 important issue and one of the most frequently cited major threats cited.

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24 INSERT TABLE 3 ABOUT HERE

25
26 To analyse the characteristics of the firms in the hotel and restaurant sector which consider
27 the practices of competitors in the informal sector as their biggest threat (i.e., obstacle to their
28 activity), an additive model is used. The first stage specification examines the general profile
29 of the firms while the second stage specification adds variables related to firms' innovation
30 capability. Table 4 reports the results. Model 1 in Table 4 reveals that compared with micro-
31 enterprises (with less than five employees), larger businesses are more likely to consider the
32 practices of competitors in the informal sector as the biggest obstacle they face. It is also the
33 case that independent businesses are more likely to perceive the practices of competitors in
34 the informal sector as their biggest obstacle than those which are part of a larger firm. **This
35 may well be because these hotels and restaurants that are larger and part of a chain are
36 appealing to a different segment of the hospitality market to smaller businesses that compete
37 more on price (rather than brand). Alternatively, and as previous research has revealed
38 (Williams et al., 2016a), it may be because smaller firms are themselves more likely to be
39 operating in the informal sector themselves.** Meanwhile, the lack of subsidies from
40 governments and also those operating without a cheque or savings account reduce the
41 likelihood of them viewing the practices of competitors in the informal sector as the biggest
42 obstacle they face. **As previous research has again revealed (Williams et al., 2016a,b), this is
43 because these businesses are themselves significantly more likely to be operating in the
44 informal sector.** Meanwhile, this is less likely among those who have formal bank accounts
45 and those who need to meet criteria on official turnover to benefit from subsidies. No
46 significant association is identified, moreover, with the gender of owner or the existence of a
47 line of credit or a loan.

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51 INSERT TABLE 4 ABOUT HERE

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54 Conducted in 2013 before the sharing economy started to considerably expand, this survey
55 finds that businesses which sold their goods and services mainly to international clients were
56 less likely to perceive informal competitors as their biggest threat. At the time, this was
57 because international tourists would have usually booked their accommodation (and perhaps
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3 inclusive meals as well) and/or paid in advance, so were less likely to source accommodation
4 and meals from informal sector providers compared with more local or national tourists who
5 can search accommodation on their arrival since they know the area and the language.
6 However, the growth of the sharing economy since this 2013 survey may well have changed
7 these findings if the survey was to be repeated today, since these platforms have enabled
8 smaller providers operating in the informal sector to now compete with larger well
9 established businesses for international tourists.

10
11 When model two includes variables more related to firm innovation capability, there
12 are no major changes in the firm characteristics associated with the likelihood to perceive the
13 threat of informal competitors as the most important impediment to their activity.
14 Surprisingly, however, those managers which have not introduced new or significantly
15 improved products or services are less likely to perceive the practices of informal sector
16 competitors as the important obstacle for their company (although the association is weak).
17 No significant association is identified, moreover, in relation to new or improved
18 organizational or management practices or structures, or with the presence of high speed
19 internet connection accessibility.

20
21 Since 2013 when this survey was conducted, the sharing economy has rapidly
22 expanded. It might well be the case that the characteristics of businesses in the hotel and
23 restaurant sector viewing the informal sector as their major threat will have changed. The
24 important point, nevertheless, is that even before the rapid growth of the sharing economy,
25 just under a quarter (23.3 per cent) of firms in the hotel and restaurant sector in Eastern
26 Europe and Central Asia viewed themselves as competing against unregistered or informal
27 firms, and 13 per cent of all firms in the hotel and restaurant sector perceived these informal
28 competitors as a major or severe obstacle to their activity.

30 31 **Discussion and Conclusions**

32
33 In order to tackle the informal sector in the hospitality industry, and more particularly, its
34 further growth due to the advent of the sharing economy, a range of policy approaches and
35 measures can be used. As Table 5 reveals, there are two distinct policy approaches which can
36 be adopted. These are firstly, a direct controls approach that seeks to tackle the informal
37 sector by ensuring that payoff from informal work is outweighed by the costs, and secondly,
38 an indirect controls approach grounded in a view that the informal sector arises when there is
39 low commitment to compliance.

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42 INSERT TABLE 5 ABOUT HERE

43
44 The direct controls approach views those engaged in the informal sector as rational economic
45 actors who participate when the benefits of operating in the informal sector outweigh the
46 expected penalty and probability of being caught (Allingham and Sandmo, 1972). Here,
47 therefore, the intention is to change the cost/benefit ratio confronting those engaged or
48 thinking about participating in the informal sector. The conventional means of achieving this
49 has been to increase the costs of operating in the informal sector by either increasing the
50 actual or perceived penalties for those caught, and/or by increasing the risks of detection.

51
52 Unlike conventional participants in the informal sector who tend to be hidden from
53 the view of state authorities, informal sector transactions in the burgeoning sharing economy
54 in the hospitality sector are potentially in clearer sight of the state authorities since the
55 participants advertise and trade on these platforms. Several options are therefore available to
56 state authorities to tackle the informal sector in the sharing economy **due to them being in**
57 **plain sight**. Firstly, **and exemplified by the French government with regard to collecting**

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3 tourist taxes, sharing economy platforms could be asked to collect the necessary taxes and
4 remit them to government, instead of depending on individual suppliers to do so. This would
5 put the responsibility on the platform providers, who would be at risk of their platform being
6 closed if they did not efficiently collect the taxes owed. Unlike individual suppliers, they
7 would therefore have commercial interest in identifying and collecting the taxes owed.
8 Secondly, the platforms could be requested to provide data on the earnings of suppliers to the
9 state authorities, as is already done in the case of both employers as well as banks in many
10 countries, thus increasing the probability of detection of the individual suppliers if they do
11 not declare their earnings.
12

13 With this information on platform earnings, a simple data matching exercise could
14 then be undertaken by tax administrations to determine whether these earnings from property
15 rental and the provision of meals has been declared on self-assessment tax returns by the
16 individual suppliers. Moreover, by platform providers explicitly informing suppliers that tax
17 administrations have access to such information, the perceived risk of detection would
18 significantly increase for individual suppliers and reduce the prevalence of the informal
19 sector in the sharing economy. Besides taking such measures to increase the perceived and/or
20 actual risk of detection, increasing penalties could also deter those considering not declaring
21 their income. However, recent research reveals that increasing the perceived risk of detection
22 is more effective at deterring engagement in the informal sector than increasing the level of
23 penalties (Williams et al., 2016c).
24

25 Besides increasing the cost side of the cost-benefit ratio, this direct controls approach
26 might also seek to make it beneficial and/or easier for participants to operate in the formal
27 sector. This has been seldom considered in most countries. The UK is an exception. To make
28 it easier to operate legitimately, the UK has overcome the problem of differentiating between
29 those providing services on an occasional basis and service providers acting on a professional
30 basis by allowing suppliers to earn up to £7,500 per annum tax-free by renting out a spare
31 room in their house, under the 'rent a room' allowance, which was raised in 2015 from
32 £4,250 per annum. From 2017, furthermore, additional tax allowances have been introduced
33 to cover sharing economy home rentals beyond just one room, such as whole properties,
34 holiday homes, storage space and driveways. Participants are to be allowed to earn up to
35 £2,000 tax-free per annum; £1,000 a year for trading income and £1,000 for property income.
36 An alternative incentive measure is to allow short-term rentals and home-sharing without any
37 registration requirements with the tax authorities only up to a specific number of days per
38 year (e.g., 30 or 60 days).
39

40 Policy measures focused on making it easier and/or more beneficial for suppliers to
41 operate legitimately, however, are only one tool available to state authorities. Until now, state
42 authorities have given little thought about how to incentivise platform providers or customers
43 to ensure that the activity is in the formal sector. For example, there have been no discussions
44 of whether exemptions from local tourist taxes could be given either to platform providers if
45 they report consumer purchases to the state authorities, or to customers when they perhaps
46 use a tick box on the platform booking system to claim exemption from local tourist tax
47 which at the same time reports to the state authorities their purchase. This would not only
48 encourage suppliers to declare their earnings, but in doing so would also ease the pressure
49 being exerted on platform providers in many countries about the unfair and informal
50 competition that they promote (European Commission, 2016d). Greater consideration is
51 required, therefore, regarding the provision of incentives to platform providers, suppliers and
52 customers to operate in the formal sector.
53

54 Beyond such direct controls, another approach is to use more indirect controls that
55 seek to alter people's view of the acceptability of operating in the informal sector, grounded
56 in a view that the informal sector arises when there is low commitment to compliance. This
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3 approach argues that many voluntarily comply even when the level of penalties and risks of
4 detection suggest that they should not if they were truly rational economic actors (Alm et al.,
5 2012; Kirchler, 2007; Murphy, 2008; Murphy and Harris, 2007). To explain this, a 'tax
6 morale' approach has emerged which views citizens more as social actors and explains
7 engagement in the informal sector to be a consequence of low tax morale, by which is meant
8 a low intrinsic motivation to pay taxes (Alm and Torgler, 2006, 2011; Torgler, 2012). The
9 objective in consequence is to foster the commitment of citizens to voluntarily comply by
10 improving their tax morale rather than seeking to force them to comply by using threats or
11 incentives to do so (Kirchler, 2007; Torgler, 2007, 2012). Rather than pursue compliance
12 using deterrence measures in a low commitment, low trust and adversarial culture, using
13 monitoring, stringent rules and prescribed processes, this tax morale approach pursues
14 compliance through self-regulation in a high trust, high commitment culture that aligns the
15 values of citizens with the formal 'rules of the game' so as to engender greater voluntary
16 commitment to compliant behaviour (Alm and Torgler, 2011; Torgler, 2012).

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18
19 In Ontario in Canada for example, the federal government is working with Airbnb, the
20 home rental company, to urge hosts to declare income. The intention is to protect consumers,
21 ensure accessibility, rights and safety obligations are met, and that tax laws are respected.
22 Some 82 per cent of Airbnb's Ontario hosts are renting out their principal residence for about
23 40 days a year, generating \$280 per month (European Commission, 2016c,d). Airbnb is to
24 send out an email during the tax season to remind hosts that they are expected to follow the
25 rules regarding tax compliance. The company itself is abiding by all tax regulations, but it is
26 up to individuals to report rental income to the state revenue agency for taxation purposes.
27 This, therefore, is an indirect controls approach, raising awareness, rather than using enforced
28 compliance. They are providing greater information to the hosts that they too must submit
29 and provide their taxes through the federal government.

30
31 Until recently, it was widely assumed that these direct and indirect control approaches
32 were mutually exclusive (Eurofound, 2013; Williams, 2014a). However, the broader
33 scholarly literature on tackling the informal sector has revealed that the most effective policy
34 approach is to combine both direct and indirect controls. In what has become known as the
35 'slippery slope' policy framework, the argument is that the most effective approach is to
36 combine direct controls to engender 'enforced' compliance by increasing the penalties and
37 risks of detection and therefore the power of authorities, with indirect controls to engender
38 'voluntary' compliance by improving tax morale and therefore trust in authorities (Kirchler
39 *et al.*, 2008; Kogler *et al.*, 2015; Kastlunger *et al.*, 2013; Muehlbacher *et al.*, 2011; Wahl *et al.*,
40 2010). This literature has revealed that when there is neither trust in authorities and
41 authorities have no power, then the informal sector will be more prevalent. When trust in,
42 and/or the power of, authorities increases however, then the informal sector reduces. This
43 literature reveals that the most effective approach is when there is both greater power of
44 authorities and greater trust in authorities.

45
46 In sum, the key contribution of this paper is that it provides the first evaluation of the
47 impacts of the informal sector on the hospitality industry and outlines the policy measures
48 required to prevent its further growth with the advent of the sharing economy. This paper has
49 shown that many firms in the hotels and restaurants sector in Eastern Europe and Central
50 Asia compete against unregistered or informal firms and find it a major or severe obstacle
51 to their operations. If this paper now encourages further analyses of the impact of the informal
52 sector on the hospitality industry in individual countries and other global regions, and more
53 particularly research on the prevalence of the informal sector in the sharing economy, then it
54 will have achieved one of its intentions. If it also leads to greater consideration by state
55 authorities of the full range of policy measures that can be used to tackle the further growth
56 of the informal sector in this industry, especially with regard to tackling the informal sector in
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3 the sharing economy, then it will have achieved its fuller intention. What is certain, however,
4 is that a laissez-faire approach cannot be adopted so far as tackling informality in the sharing
5 economy is concerned.
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Table 1. Hotels and restaurants in Eastern Europe and Central Asia competing against unregistered or informal firms (% , by country)

n = 623

Country	Hotels and restaurants (%)
Bosnia-Herzegovina	76
Kosovo	72
Kazakhstan	63
Mongolia	61
Serbia	52
Macedonia	52
Georgia	51
Montenegro	45
Moldova	42
Bulgaria	41
Croatia	40
Poland	38
Albania	32
Turkey	32
Tajikistan	31
Slovakia	25
Russia	20
Lithuania	17
Latvia	16
Slovenia	15
Ukraine	15
Czech Republic	13
Kyrgyzstan	11
Romania	11
Estonia	11
Belarus	8
Hungary	8
Azerbaijan	7
Uzbekistan	4
Armenia	2

Note: We used here the answers to the question “Does this establishment compete against unregistered or informal firms?”.

Source: own calculations based on Enterprise Surveys (Business Environment and Enterprise Performance Surveys, BEEPS, 2013) conducted by the World Bank and the European Bank for Reconstruction and Development.

Table 2. Practices of informal competitors as obstacle to current operations in hotel and restaurant sector in Eastern Europe and Central Asia (% , by country)*n* = 623

Region/ Country	No obstacle (%)	Obstacle (%):				DK, Refusal, DA (%)*
		Minor	Moderate	Major	Severe	
<i>Eastern Europe and Central Asia</i>	54	15	11	11	2	7
Serbia	0	0	52	0	0	48
Montenegro	2	53	15	0	0	30
Kosovo	7	6	13	20	49	5
Bulgaria	16	8	23	30	0	23
Czech Republic	16	0	31	39	0	14
Macedonia	16	6	38	22	18	0
Bosnia-Herzegovina	22	2	23	53	0	0
Tajikistan	28	41	24	0	0	7
Romania	32	0	14	39	9	6
Albania	35	24	18	14	5	4
Kazakhstan	35	0	2	61	0	2
Mongolia	39	16	45	0	0	0
Latvia	41	34	4	21	0	0
Turkey	49	43	4	0	0	4
Russia	53	9	14	8	1	15
Slovakia	54	25	21	0	0	0
Croatia	55	22	8	15	0	0
Kyrgyzstan	62	0	25	4	9	0
Azerbaijan	67	23	9	1	0	0
Belarus	68	8	0	0	0	24
Slovenia	70	23	7	0	0	0
Ukraine	71	7	10	10	1	1
Estonia	75	14	11	0	0	0
Georgia	77	4	2	4	0	13
Armenia	83	0	1	0	0	16
Hungary	83	8	0	0	0	9
Lithuania	83	0	1	0	16	0
Poland	84	0	13	0	0	3
Moldova	85	0	0	15	0	0
Uzbekistan	93	0	1	3	3	0

Notes: We used here the answers to the question "To what degree are Practices of Competitors in the Informal Sector an obstacle to the current operations of this establishment?". * Don't know, Refusal, Does not apply.

Source: own calculations based on Enterprise Surveys (Business Environment and Enterprise Performance Surveys, BEEPS, 2013) conducted by the World Bank and the European Bank for Reconstruction and Development.

Table 3. Biggest obstacle faced by firms in Eastern Europe and Central Asia: all sectors and hotel and restaurant sector (% and rank)

Biggest obstacle faced	All sectors (n=15,883)		Hotels and restaurants sector (n=623)	
	%	Rank	%	Rank
Tax rates	24.86	1	28.73	1
<i>Practices of competitors in the informal sector</i>	11.00	3	10.52	2
Political instability	9.40	4	8.95	3
Access to finance	11.04	2	6.94	4
Inadequately educated workforce	4.81	6	3.77	5
Electricity	2.59	8	3.60	6
Corruption	5.35	5	3.52	7
Tax administration	3.40	7	3.16	8
Access to land	1.99	12	2.57	9
Labour regulations	2.51	10	1.25	10
Business licensing and permits	2.11	11	1.08	11
Customs and trade regulations	1.45	13	0.85	12
Transport	2.54	9	0.70	13
Crime, theft and disorder	1.29	14	0.59	14
Courts	1.03	15	0.05	15
Don't know; Refusal, Does not apply	14.63	--	23.72	--

Notes: We used here the answers to the question "Which of elements of the business environment included in the list, if any, currently represents the biggest obstacle faced by this establishment?".

Source: own calculations based on Enterprise Surveys (Business Environment and Enterprise Performance Surveys, BEEPS, 2013) conducted by the World Bank and the European Bank for Reconstruction and Development.

Table 4. Logistic regressions of the propensity to consider practices of competitors in the informal sector as biggest obstacle by hotels and restaurants in Eastern Europe and Central Asia

Variables	Model 1		Model 2	
	β	se(β)	β	se(β)
Business size (Micro: < 5)				
Small: ≥ 5 and ≤ 19	4.894 ***	0.883	4.975 ***	0.977
Medium: ≥ 20 and ≤ 99	5.220 ***	1.137	5.520 ***	1.313
Large: ≥ 100	4.829 ***	1.296	4.963 ***	1.292
Main clients (Local)				
National	-0.003	0.756	0.048	0.746
International	-2.835 **	1.227	-2.909 **	1.192
Subsidies (Yes)				
No	-1.551 *	0.850	-1.562 **	0.694
Cheque or savings account (Yes)				
No	-2.425 **	1.014	-2.370 **	1.064
Line of credit or loan (Yes)				
No	0.398	0.514	0.540	0.517
Part of a larger firm (Yes)				
No, a firm on its own	1.957 *	1.076	2.002 *	1.037
Females amongst the owners (Yes)				
No	0.238	0.576	0.392	0.628
New or significantly improved products or services (Yes)				
No			-1.175 *	0.660
New or significantly improved organizational or management practices or structures (Yes)				
No			0.946	0.754
IT&C: High-speed Internet connection (Yes)				
No			-0.107	0.924
Constant	-7.688 ***	1.542	-7.860 ***	1.675
Subpop. N		588		582
F		4.54		3.76
Prob > F		0.0000		0.0000

Notes:

Significant at *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (standard errors in parentheses).
All coefficients are compared to the benchmark category, shown in brackets.
Sample size is lower due to missing data.

Source: own calculations based on Enterprise Surveys (Business Environment and Enterprise Performance Surveys, BEEPS, 2013) conducted by the World Bank and the European Bank for Reconstruction and Development.

Table 5 Policy approaches for tackling the informal sector in the sharing economy

Approach	Measures	Tools	Examples for tackling sharing economy
Direct controls: deterrents	Improved detection	Data matching and sharing	Tax administrations cross-tabulate platform data on participants earnings with tax return data
		Inspections	Conduct inspections of properties rented out
	Improve sanctions	Increase penalties	Raise penalties for not declaring income from shared economy
Direct controls: incentives	For platforms	Simplification of compliance	Request platforms to collect taxes from hosts
	For suppliers	Supply-side incentives (e.g. simplification of compliance; advice and support)	Tax-free limit for earnings from sharing economy
	For customers	Demand-side incentives (e.g., targeted direct and indirect taxes)	Provide exemptions from tourist taxes for those reporting platform purchases
Indirect controls	Change citizens tax morale	Tax education	Send normative appeals to platform participants that they should declare income
		Normative appeals	
		Awareness raising of benefits of declaring full salaries	Educate suppliers about the benefits of declaring income and paying tax

APPENDIX

Table A.1. Variables used in the regression analysis: definitions, descriptive statistics and the results of Chi-square test of independence between the dependent variable and the independent variables

Variables	Definition	Mode	Min / Max	Chi-square test of independence*
<i>Dependent variable</i>				
Informal sector as the biggest obstacle faced by businesses in hotels and restaurants sector	Dummy variable that evaluates the impacts of the informal sector on the hotels and restaurants sector	Not the biggest obstacle (89.5%)	0 / 1	-
<i>Independent variables</i>				
Firm size	Firm size in categories	Small (67.9%)	0 / 4	$X^2 (3) = 10.30$, $F (1.82, 1130.92) = 0.93$, $p > 0.05$
Main clients	The main clients to which the establishment sold its main product or service in categories	Local (87.9%)	1 / 3	$X^2 (2) = 1.58$, $F (1.07, 657.83) = 0.34$, $p > 0.05$
Subsidies	Dummy variable for receiving over the last three years subsidies from the national, regional or local governments or European Union	No (91.4%)	0 / 1	$X^2 (1) = 19.09$, $F (1, 615) = 4.05$, $p < 0.05$
Cheque or savings account	Dummy variable for establishments having a cheque or savings account	Yes (74.9%)	0 / 1	$X^2 (1) = 18.71$, $F (1, 614) = 10.30$, $p < 0.05$
Line of credit or loan	Dummy variable for establishments having a line of credit or a loan from a financial institution	No (72.7%)	0 / 1	$X^2 (1) = 0.38$, $F (1, 610) = 0.09$, $p > 0.05$
Part of a larger firm	Dummy variable for the independence of the firm	No, firm on its own (92.3%)	0 / 1	$X^2 (1) = 0.98$, $F (1, 622) = 0.45$, $p > 0.05$
Females amongst the owners	Dummy variable for establishments having females amongst the owners	No female owners (54%)	0 / 1	$X^2 (1) = 0.01$, $F (1, 614) = 0.01$, $p > 0.05$
New or significantly improved products or services	Dummy variable for establishments introducing during the last three years new or significantly improved products or services	No (84.5%)	0 / 1	$X^2 (1) = 5.59$, $F (1, 620) = 1.23$, $p > 0.05$
New or significantly improved organizational or management practices or structures	Dummy variable for establishments introducing during the last three years new or significantly improved organizational or management practices or structures	No (82.6%)	0 / 1	$X^2 (1) = 0.11$, $F (1, 619) = 0.03$, $p > 0.05$
IT&C - High-speed Internet connection	Dummy variable for establishments having a high-speed Internet connection	Yes (68.6%)	0 / 1	$X^2 (1) = 2.22$, $F (1, 620) = 0.22$, $p > 0.05$

Notes: * Because of the complex sampling design, the default X^2 calculated by STATA software is uncorrected. For solving this issue, the Pearson X^2 statistic is corrected with the second-order correction of Rao and Scott (1984) and is converted into an F statistic (for further details please see Stata User's Guide Release 13).

Source: own calculations based on Enterprise Surveys (Business Environment and Enterprise Performance Surveys, BEEPS, 2013) conducted by the World Bank and the European Bank for Reconstruction and Development.

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Author Response Form

When revising your paper, please prepare this report explaining how you have responded to each reviewer's comments and suggestions specifically.

Thank you for sending the second round of comments for our paper entitled "Regulating the sharing economy to prevent the growth of the informal sector in the hospitality industry " for publication in *International Journal of Contemporary Hospitality Management*. We would like to thank referees for their careful and constructive reviews. Indeed, they were excellent. We have responded positively to each and every comment they raise. The net result is a stronger and more robust paper than was originally the case. Below, we specify in detail how each and every comment has been responded to in a positive manner.

Reviewer: 1

Recommendation: Minor Revisions

REVIEWER A

Suggestions/comments from the Reviewer	Response from the Author(s)
<p>1. Originality: Does the paper contain new and significant information adequate to justify publication?: This is a highly original and timely study. <i>Yes.</i></p>	Thank you.
<p>2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: <i>Yes.</i></p>	
<p>3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: <i>Yes.</i></p>	
<p>4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: <i>Yes.</i></p>	
<p>5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: <i>Unfortunately I cannot see the response letter from the author(s). Please upload the letter.</i></p>	There was a technical error. We have now uploaded the cover letter.
<p>6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: <i>Appropriate.</i></p>	Thank you.

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Reviewer: 2

Recommendation: Minor Revision

REVIEWER B

Suggestions/comments from the Reviewer	Response from the Author(s)
<p>1. Originality: Does the paper contain new and significant information adequate to justify publication?: <i>The paper contains new and significant information adequate to justify publication however it needs some improvements.</i></p>	<p>All these concerns have been addressed. Please see below, in details, the response to your general and specific comments.</p>
<p>2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: <i>Introduction section points out some important steps in term of theoretical and empirical needs based on the research objectives emphasized within the article, however, it could have been more specific. Literature review could have focused more on the specific issues. Advantages and disadvantages of the existing link between the informal sector and the hospitality industry could be detailed.</i></p>	
<p>3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: <i>Theoretical framework could have provided a justification for the main point between the informal sector and the hospitality industry. The methods of the direct controls approach and indirect controls approach could have been explained in a way that it would be more associated with the results.</i></p>	
<p>4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: <i>Within empirical results section, the contents were not well written so the materials used in this section could be handled in a way that the relevant readers can easily understand the concept at first glance.</i></p>	
<p>5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What</p>	

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<p>is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?:</p> <p><i>The paper identifies some implications for research and society. The paper does not bridge the gap between theory and practice well enough. The research could be used in practice, however, it is really difficult to influence public policy. Some implications are consistent with the findings.</i></p>	
<p>6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.:</p> <p><i>The materials used in this article could have been handled in a way that the relevant readers could easily understand the concepts at first glance.</i></p>	
<p>Comments:</p> <p>TITLE: Regulating the sharing economy to prevent the growth of the informal sector in the hospitality industry</p> <p>Aim: The aim of this paper is to evaluate for the first time the impacts of the informal sector on the hospitality industry, and then to discuss what needs to be done to prevent the further growth of the informal sector in this industry.</p> <p>Some Findings:</p> <p>The finding is that 23% of hotels and restaurants in Eastern Europe and Central Asia report competing against unregistered or informal operators and 13% view these informal competitors as a major or severe obstacle. The larger the business, the greater is the likelihood that the informal sector is considered their biggest obstacle.</p>	
<p>Having examined this paper, I would like to submit the following comments:</p> <p>General Comments</p> <p>1* The author said that this is the first paper to evaluate the impacts of the informal sector on the hospitality industry. What is new? What has been derived for the first time?</p> <p>2* Method, data and the model employed in this article are not clear. The method could have been expressed in way that it could be associated with the concept of the informal sector.</p>	<p>1* This is the first paper that seeks to evaluate the impact of informal sector (more specifically, the practices of informal competitors) on legitimate businesses operating in the hospitality sector. Unlike previous studies which attempt to measure the size of the informal sector in hospitality industry, this paper analyses survey data to explore how affected are the legitimate businesses by informal practices. 2*The method used, namely regression analysis has been chosen and detailed in accordance with previous studies related with the informal sector and conducted on businesses rather than individuals. Also, the main independent variables were extracted from these previous studies. Please see, for example: Williams and Kedir, 2016, Business Registration</p>

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3* The methodology (logistic regression) was selected based on the structure of the dependent variable. How logical is it?

4* Most of the independent variables used in the model are dummy variables. Hence, estimated results could be fragile.

5* Introduction section points out some important steps in term of theoretical and empirical needs based on the research objectives emphasized within the article, however it could have been more specific. Literature review could have focused more on the specific issues. Advantages and disadvantages of the existing link between the informal sector and the hospitality industry could be detailed.

6* Theoretical framework could have provided a justification for the main point between the informal sector and the hospitality industry.

7* Within empirical results section, the contents were not well written so the materials used in this section could be handled in a way that the relevant readers can easily understand the concept at first glance.

8* In general, the concept of footnote or endnote could be used for extra information to justify the issues discussed.

9* Policy implications or recommendations could be supported by doing more analytical discussions and evidences.

and Firm Performance: Some Lessons from India, Journal of Developmental Entrepreneurship, Vol. 21, No. 3, doi: 10.1142/S1084946716500163; Williams et al., 2016, Informal Entrepreneurship in Developing Economies: The Impacts of Starting Up Unregistered on Firm Performance, Entrepreneurship Theory and Practice, doi: 10.1111/etap.12238.

3*As mentioned above, the method (regression analysis) has been chosen in line with previous studies analysing the informal sector. Nevertheless, the type of the regression has been chosen in relation with the dependent variable. Since our dependent variable was a dummy variable, the proper type of regression to be used is logistic regression.

4* We have used a VIF for diagnosing the multicollinearity issue and have also used an additive fashion approach for our model to test its stability. Please see point 4 from specific comments below.

5* As stated in the literature review, although different studies on informality acknowledged that the informal sector might be highly prevalent in the hospitality sector compared with other sectors, an extensive literature review of the papers analysing the tourism sector reveals that the informal sector is seldom if ever considered (please see for more details Thomas, R., Shaw, G. and Stephen, P.J. (2011), "Understanding small firms in tourism: A perspective on research trends and challenges", Tourism Management, Vol. 32, pp. 963-976). The few exceptions in this direction were already mentioned in the paper and given the space limit and the focus of the paper, we did not went into more details about these studies. Yet, we offered the references to the reader if interested in further details.

6* The justification has been provided. Please see page 2 and 3 in the article's text. On the one hand, there are formal competitors that employ informal practices (i.e. by using informal workers, envelope wages, underreporting their activity etc.) and on the other hand, in hospitality sector, there are different types of informal competitors/ unregistered competitors (most common small family businesses) which affect the activity of legitimate businesses. Furthermore, the growth of the sharing economy further increases the informal practices in the hospitality sector which makes the analysis of informal sector in hospitality industry an important issue to be investigated.

7* We have now included further information in the empirical part to ease the interpretation process to the reader. Please see tables 1, 2 and 3 as well as the new table in the Appendix.

8* We agree. Nevertheless, because few studies analysing the informality in hospitality industry were conducted before, we expect that most of the readers are not familiar with the concept of shadow economy, types of informal practices and so on. As such, we have included the definition and explanation of these terms in the main text of the paper in order to make sure that the reader does not overlook them. Anyway, we included three notes under the tables 1,2 and 3

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	<p>which provide more explanation about the figures presented in the tables.</p> <p>9* We have done so. We have now included more specific examples of policies and measures applied to the informal economy in the hospitality sector and more specifically, measures related with the sharing economy. Please see these changes marked in red in the results, discussion and conclusion sections of the paper.</p>
<p>Specific Comments</p> <p>Section1- 'Introduction' is satisfactory. 'Empirical literature' needs more discussions. Within this section, the link among the concept of sharing economy, informal economy and hospitality industry could have been explained more obvious.</p> <p>Section 2- Model and 'Data'</p> <p>1* The sample used in this study is not well explained. It could have been better discussed.</p> <p>2* Table 1, 2 and 3 do not provide sufficient information whether (i) the practices of competitors in the informal sector as an obstacle to their current operations...(ii) the hotels and restaurants compete against informal firms. (iii) the biggest obstacles issues are the same in both regions. More emphasizes needed on the issues.</p> <p>3* The correlation matrix method could have been used for the benefit of the regression results (i.e. A low correlation is expected among explanatory variables whereas a high correlation expected between dependent and independent variables).</p> <p>4* Due to the number of explanatory variables used in the model, the problem of multicollinearity could be detected whether exists or not. (VIF) variance inflation factor could be conducted.</p> <p>5* Could dummy variables provide bias empirical results? They were used in the form of dependent variable and explanatory variables.</p> <p>6* In Table 4, model 1 and model 2 are not well defined. The estimated results could be ambiguous. Also results estimated in the table could have been more explained and more discussed.</p> <p>7* Some statistical indicators such as R-sq could have been displayed.</p> <p>8* Diagnostic test results could have been displayed and explained (autocorrelation/serial correlation, functional form, normality etc..).</p> <p>9* Did the empirical results support the policy approaches for tackling the informal sector in the sharing economy.</p>	<p>Section 1</p> <p>* As mentioned above (point 6) these concepts, their importance and the link between them were provided at pages 2 and 3 in the article's text.</p> <p>Section 2</p> <p>1* We have used in this study the results of the fifth round of the Business Environment and Enterprise Performance Survey (BEEPS V, 2013), conducted by the World Bank and the European Bank for Reconstruction and Development. We decided to keep in our analysis all the countries included in this survey in order to make an overview of the threat of informal practices to the hospitality sector in two different continents and as many national cultural settings as possible. This is the reason we displayed the descriptive results by country, to allow the reader to note the differences between these countries. Ideally, even the regressions analysis, would benefit from an individual analysis, by country, yet the size of present dataset (although the most extensive one available at the moment) does not allow such an in depth analysis.</p> <p>2* We have now included as a note under the each table, the specific question used to derive the figures in the table (please see the tables 1,2 and 3). Hopefully, this will help the reader to better understand the figures presented in table 1 to 3 and their interpretation in the paper's text.</p> <p>3* We agree. We have now added a new table with all the independent variables used in the analysis and their relation with the dependent variable. Since the independent variables are categorical and the dependent variable is dummy we reported the results of a chi square examining the relation between them. The definition of the variables, as well as the mode, min and max are now reported in the Appendix.</p> <p>4* We agree. In order to explore the correlation between our independent variables, due their nature (categorical variables) we firstly used chi square test - included now in the appendix as well as we cross tabulated the variables. The results of colinearity diagnostic yield a mean VIF of 1.12 (with the lower value of 1.02 for 'females amongst the owners' variable and the highest value of 1.35 for "New or significantly improved organizational or management practices or structures" variable), which shows that multicollinearity does not represent an issue for our models.</p> <p>5* Even if we have used a large number of dummies in our model, as showed before, there is no concern related with the model mulcolinearity. Also, as a measure to check for the model stability, we here used the additive fashion. As such, we added a second model in order to show that the significant correlations do not vanish when other factors are</p>

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10* Did the empirical results support the statement mentioned in the last paragraph "*this paper has shown that many firms in the hotels and restaurants sector in Eastern Europe and Central Asia compete against unregistered or informal firms and find it a major or severe obstacle to their operations*".

Section 3- Conclusion and discussion

1* The methods of the direct controls approach and indirect controls approach could have been explained in a way that it would be more associated with the results.

2* Could policy implications be the same for both Eastern Europe and Central Asia?

Bottom Line:

The materials used in this article could have been handled in a way that the relevant readers could easily understand the concepts at first glance.

Decision: Minor Revision, I hope that minor revision in this case will not discourage the author (s)

controlled for.

6* We have now explained better in the paper how we have chosen the two models and from where the independent variables were extracted (please see marked in red details at page 2 and page 6 in the paper).

7* In this paper we have used a weighting scheme in order to obtain sample representativeness (explained in the methodology part of the paper). With survey data, since sampling weights, PSU's, and strata are specified, the assumptions used for maximum likelihood estimation, and hence the calculation of a pseudo-R2 are not met (i.e. observations are not independently and identically distributed). Therefore, the pseudo-R2 is not valid with survey data. What is available instead is the F-statistic (equivalent to Wald statistic) test of the null hypothesis that all of the slope parameters are jointly equal to zero. Rejection of the null hypothesis shows a significant relationship between the independent variables and the dependent variable. We have now included these details in the table 4. Thank you for drawing this into our attention.

8* We have now provided additional diagnostic tests (i.e. VIF, the F statistics). As for autocorrelation and serial correlation, these are rather concerns for panel data analysis. In this study we have used cross-sectional data. Therefore, serial correlation does not apply.

When speaking about the functional form, considering our data (categorical and dummy variables), there were not too many options to be explored since our dependent variable was a dummy one and the independent variables were dummy and categorical. Thus, we have chosen a logistic model. If our dependent variable was a numerical one, then we would have been explored more options against the most commonly used OLS regression. Also, we could explore more functional forms for our independent variables, if they were continuous.

In respect with the normality test, since we deal with categorical data, we do not need to check for such an assumption.

9* Yes, they do. As the empirical results shown, the informal sector represent a big challenge for the businesses operating in hotels and restaurants. Even if the data does not allow us to separate the effect of the informal competitors which are a part of the sharing economy (i.e. use on-line platform mentioned in the paper and do not report their income) from the 'traditional' informal competitors, the policy approaches mentioned cover both categories of informal competitors. It is the first study which seek to evaluate the impact of informal sector in hospitality industry (yet, restricted by the data available) and our aim is to encourage further research in the field, as we concluded in the paper "If this paper now encourages further analyses of the impact of the informal sector on the hospitality industry in individual countries and other global regions, and more particularly research on the prevalence of the informal sector in the sharing economy, then it will have achieved one of its intentions."

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	<p>10. Yes, they are. The finding is that 23% of hotels and restaurants in Eastern Europe and Central Asia report competing against unregistered or informal operators and 13% view these informal competitors as a major or severe obstacle. Furthermore, 10.5% consider that the biggest obstacle faced by their firms, is represented by the practices of competitors in the informal sector.</p> <p>Section 3- Conclusion and discussion</p> <p>1* The direct and indirect methods were introduced and explained in order to provide an extensive view of the possible solutions for tackling undeclared economy in hospitality sector. They were related with the empirical findings, namely that the informal sector represents an important issue and needs to be tackled for ensuring a fair competition for the legitimate businesses.</p> <p>2* No. Definitely the policy implications are different from country to country in accordance with the prevalence of the informal sector and cultural settings. That is precisely why, all the main policy approaches were discussed (i.e. direct and indirect controls). Furthermore, a large number of examples were provided (i.e. measures used in the UK, Ontario) in order to allow the reader to evaluate them and to identify which might be more appropriate in a certain case/ country. In order to draw more specific policy recommendations, further studies with larger samples in each individual country are required.</p>
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Reviewer: 3

Recommendation: Minor Revision

REVIEWER C

Suggestions/comments from the Reviewer	Response from the Author(s)
<p>Comments: The revised version addressed most of my concerns. However, I would expect the authors to focus on improving the conclusions, particular attention needs to be paid to the contribution of the study. Also, more focus needed to improve the managerial and policy implications in the study.</p>	<p>Thank you. We have done so. Please see the conclusion section.</p>
<p>1. Originality: Does the paper contain new and significant information adequate to justify publication?: <i>Satisfactory</i></p>	<p>Thank you.</p>
<p>2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored? <i>Satisfactory</i></p>	<p>Thank you.</p>

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<p>3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate? <i>Satisfactory</i></p>	<p>Thank you.</p>
<p>4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper? <i>Conclusions need to be improved, particular attention needs to be paid to the contribution of the study.</i></p>	<p>We have done so. Please see the conclusion section.</p>
<p>5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: <i>Managerial implications and policy implications could be discussed further.</i></p>	<p>We have done so. Please see the conclusion section.</p>
<p>6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: <i>Satisfactory</i></p>	<p>Thank you.</p>

In sum, we have responded positively to each and every comment raised by the reviewers and in doing so, the significant contributions of this paper have been made explicit and the paper has become stronger and more robust than was originally the case. We would therefore like to thank the reviewers for their detailed and useful feedback. It has helped us considerably improve the paper.