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Business Licencing Reform and Gender Equality: Evidence from Indonesia

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ABSTRACT *Business environment reform targets inadequate business regulations, intending to remove constraints to business investment, enabling growth and job creation, and creating opportunities for international business to contribute to and benefit from this growth. Women-led businesses are likely to be disproportionately negatively affected by a poor business environment. However, there is a dearth of context-specific knowledge of the impact of business environment reform on gender equality. This paper offers new insights into this relationship through an in-depth analysis of the Pelayanan Terpadu Satu Pintu (PTSP) or one-stop shop business licencing reform in 2009, exploiting the variation in the extent of its implementation to examine how the effects vary, focussing on the gender of firm leadership. Our findings suggest that the reform is unlikely to have led to either unintended negative consequences for women-led firms, nor do we find any evidence of transformational change. Outside Jakarta, advances for women were achieved, while in Jakarta existing exclusions were maintained and arguably deepened. Stronger gender and inclusion outcomes would require further deepening and expanding the positive achievements identified, including general business environment improvements coupled with targeted support for sectors.*

KEYWORDS: Business environment; business reform; Indonesia; inclusion; gender

1. Introduction

Business environment reform (BER)¹ targets inadequate business regulations, intending to remove constraints to business investment, enabling growth and job creation, and creating opportunities for international business to contribute to and benefit from this growth. However, there is a dearth of context-specific knowledge of the impact of BER on gender equality.² This research offers new insights into this relationship through an in-depth analysis of business licencing reform in Indonesia. We look at the *Pelayanan Terpadu Satu Pintu* (PTSP) or one-stop shop business licencing reform in 2009, and assess its effects on firm performance, and examine how these vary based on the gender of firm leadership.

While a review of existing literature suggests that in general, there is no direct link between BER and gender equality, indirect links are likely through the influence of BER on firm performance (Wennmann, Ganson, & Luiz, 2017; White & Fortune, 2015). Outcomes will be influenced by the differential ways in which women-led firms experience the business environment

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when compared to their male counterparts, with disparities based on how they are treated under the law, as well as structural and sociocultural factors. The fact that in many countries, female-led firms are fewer and smaller than those of their male counterparts, and may operate in different sectors or be over-represented in the informal sector (Bonnet, Vanek, & Chen, 2019; Kucera & Roncolato, 2008, Lewis, 2016), also affects these dynamics.

PTSP was broad-based and not designed to have differential effects for specific sectors or types of firms, and did not have specific gender targeting. However, women-led businesses often face particular barriers from a poor licencing regime (Doing Business, 2008; Ellis, 2007; Simavi, Manuel, & Blackden, 2010), so in theory, PTSP could be expected to have a particular benefit for women. For example, often women-led businesses are constrained by lower capability (time, money, skills) to deal with complex and time-consuming procedures, while the large fixed costs are a relatively greater burden for smaller businesses in general (Ellis, 2007; Klapper & Parker, 2011; Simavi et al., 2010).

On the other hand, women may not benefit due to differences in socialisation of the reform in different parts of the country, leading to a lack of awareness of the reforms and their potential benefits among more marginalised businesses, and different competitive pressures facing informal firms. Even if they are aware of reforms, smaller informal firms, often led by women, may choose not to register or fail to benefit due to broader institutional weaknesses and competitive dynamics that have contributed to this informality. If these factors are not also addressed, then formalisation may be of little benefit. As informal firms often lack the economies of scale to respond to increased competition resulting from greater ease of entry for new firms, reform may make the business environment worse for them.

Using data from the World Bank Enterprise Survey (WBES), a survey of small, medium, and large registered firms (that is, with more than four employees) in specific parts of Indonesia between 2009 and 2015,³ we find that on average, firms benefitted from improved business performance (sales), as a direct or indirect effect of this reform, and there was a marginal increase in the number of medium and large-scale firms. Outside Jakarta (Bali, Banten, Lampung), women-led firms experienced a small but significant benefit relative to male-led firms, related to both sales and the number of medium and large-scale firms they run. In Jakarta, women-led firms continued to lag behind men. There were no significant effects on employment, and this held across province and gender.

This study looks at a past reform and exploits the variation in the extent of its implementation in order to learn lessons for future policy-making. While our analysis did not focus on shocks, putting them in the context of various ongoing crises, at least two factors are important. First, as the economic recession pushes more people into the informal sector, it is even more important to bridge rather than reinforce formal–informal divides. Second, general business environment improvements should be coupled with targeted support for sectors, and this will be true particularly for those exposed to shocks, which are disproportionately affecting women, including in agriculture, trade, hotels and restaurants, and other services.

The remainder of the paper is structured as follows. [Section 2](#) provides an overview of the literature on BER and gender equality, and a summary of the business environment and gender context in Indonesia. [Section 3](#) outlines the framework and empirical approach underpinning the study. The findings on BER and firm performance are presented in [Section 4](#), followed by a discussion of business licencing reform and gender equality in [Section 5](#). Finally, [Section 6](#) concludes with overall recommendations.

2. Literature

2.1. *Business environment and gender equality*

There is little evidence of the impact of BER on gender equality, particularly with respect to the impact of reforms in specific functional areas on women as business owners or employees.

However, the literature does discuss how the business environment affects women in business, and how women's experiences of a given business environment can be different from those of men. This can be owing to differences in how men and women are treated by the law, but more often is the result of structural or sociocultural factors which affect how men and women behave in a given business environment and the barriers they face.

In many developing countries, female-led firms are fewer in number and smaller in size than those of their male counterparts (Bardasi, Sabarwal, & Terrell, 2011; Ellis, 2007; Klapper & Parker, 2011; Simavi et al., 2010). Both female-led firms and female employees tend to be more prominent in certain sectors (Klapper & Parker, 2011). These factors are partly explained by the education and skills available to women in many countries. For example, a lack of experience and contacts in higher-skilled sectors can lead to women's exclusion from these sectors (Klapper & Parker, 2011; Organisation for Economic Co-operation and Development [OECD], 2017), and can also contribute to women becoming entrepreneurs, often in the informal sector owing to an inability to secure well-paying formal employment. Female-led firms are found in retail and textile sectors in Europe and Central Asia and in sub-Saharan Africa (Bardasi et al., 2011). In Vietnam, female-led firms were found to focus on traded goods as opposed to production (Akram-Lodhi & van Staveren, 2003). However, looking in more detail at countries within sub-Saharan Africa, the particular sectors favoured by men and women change between country, with little overall pattern (Bardasi, Blackden, & Guzman, 2007). Differences in business size across all geographies globally tended to show the same pattern, with women-led firms tending to be smaller, and also fewer in number.

Both female-led firms and female employees are often observed to underperform their male counterparts across a broad range of metrics including income, growth, and, in the case of firm ownership, longevity of firm (Klapper & Parker, 2011). Again, though, the specific differences vary by region and by metric, with gender gaps being observed in productivity metrics in Europe and Central Asia and Latin America but not sub-Saharan Africa, and in growth metrics only in Latin America (Bardasi et al., 2011).

2.1.1. Explaining the differences: structural factors affecting the business environment. A six-country study by the OECD (2017) shows that even where there are few gender disparities under the law, male and female-led businesses operate in markedly different ways due to structural and sociocultural factors affecting the business environment, and women have very different employment prospects from men. For example, in three relevant themes that emerged from the literature – size and sector of business, business registration procedures and access to capital – women experience the business environment very differently from men despite there being no legal discrimination between the two.

As noted, female entrepreneurs and employees tend to work in smaller firms and are often located in different sectors from men, although specific patterns vary by country. Firm size in turn affects the likelihood of formalisation, since for smaller firms, the time required and costs of registering are relatively more impactful than for larger businesses (Ellis, 2007). The tax regime has further negative impacts on small businesses, which lack economies of scale and pay more VAT on inputs than larger firms, as a percentage of income (Akram-Lodhi & van Staveren, 2003). A firm's sector also affects how it experiences the business environment, including the tax regime. In Vietnam, female-led businesses are more likely to be in the traded goods sector, to which the standard 10 per cent VAT applies. The male-dominated production sector has a VAT of 5 per cent for 'essential inputs', resulting in a greater chance that a male-run businesses will pay less VAT (Akram-Lodhi & van Staveren, 2003).

Secondly, male and female-run firms operating in the same business environment can have very different experiences of being able to access capital. Size itself is a factor, which negatively affects the ability to raise finance (Loscocco, Robinson, Hall, & Allen, 1991). Commonly, women have less access to appropriate collateral, particularly in environments where they have

weak ownership rights (Doing Business, 2008; Klapper & Parker, 2011; OECD, 2017). ‘Immovable’ assets which are often accepted as collateral by lenders are typically owned by men, while women own assets such as jewellery which are less acceptable (OECD, 2017). In addition, women may be less able to travel to financial institutions, due to safety concerns, care responsibilities or men’s control over their movements (Chamlou, Klapper, & Muzi, 2008; OECD, 2017). On the other hand, while access to capital is clearly correlated with business success, as women often work in less capital-intensive industries, the relative importance for firm performance may be less pronounced (Klapper & Parker, 2011).

Third, women may be disproportionately negatively affected by complex business registration processes, which affect both the number and size of female-led firms (Bardasi et al., 2007), and whether or not they formalise. In Kenya, for example, far more women operate in the informal sector than in the formal sector, with women perceiving difficulties in the business registration process as a far greater issue than for men (Ellis, 2007). In Uganda, 40 per cent of female-led businesses claim that onerous procedures were an obstacle to their growth, compared with 30 per cent of male-led businesses. According to the 2004 Uganda Regulatory Cost Survey Report, a pilot programme in Entebbe saw simplification of licencing procedures contribute to first-time business registrations of female-led firms, which were 33 per cent higher than for their male counterparts (Bardasi et al., 2007; Doing Business, 2008; Ellis, 2007).

In developing countries, women are typically time-poor compared with men, owing to a dual domestic and business role, and as such are less able to spend significant amounts of time in bureaucratic processes. Lower levels of education and business contacts among women make this process harder (Ellis, 2007; Simavi et al., 2010). Additionally, women are sometimes seen as easier targets for extracting bribes or ‘facilitation’ payments, including in the form of sexual favours, when going through business registration processes (Doing Business, 2008). For example, a study of bureaucratic processes in the health and education sectors in Bangladesh found that women are more likely than men to be asked for ‘speed payments’ in order to expedite processes (Oxford Policy Management, 2007).

2.1.2. Explaining the differences: legal treatment of men and women. Some legal differences have a clearly negative impact on women’s ability to run a business on equal terms with men. For example, legal restrictions on women’s property ownership restrict access to business financing owing to lack of collateral, particularly in the Middle East and North Africa region (OECD, 2017; Simavi et al., 2010). Additionally, restrictions on women’s travel in certain areas can put them at a disadvantage in terms of their ability to perform business activities. In regions where traditional law predominates, it can disempower women. For example, in Cameroon and Tanzania, women’s property ownership and inheritance rights can be severely restricted, resulting again in a lack of access to capital or loan collateral (Doing Business, 2008).

Differences in the legal treatment of men and women also affect employment, with greater differences leading to lower female employment. This relationship holds across both rich and poor nations, for male and female-owned businesses, and for small and medium-sized companies, although does not hold for larger companies (Amin & Kushnir, 2012). In Burkina Faso, for example, labour laws restrict women’s working hours ostensibly to allow for more of a balance of work with domestic roles, but in reality make female candidates less attractive as employees (Bedford, 2009). Anti-discrimination laws have attempted to redress such imbalances. An example is Rwanda which, despite having a broadly deregulatory approach to business and labour markets, still maintains quotas for female representation in the workforce (Bedford, 2009). While these studies do not relate the results to firm performance, they demonstrate that gender differences in laws have a clear impact on gender and inclusion.

Given that the business environment affects women in business in significant ways which are different for men, we can reasonably expect that any effects of BER will also vary significantly. Hence, we focus attention on the effect of BER on women-led businesses and the implications

for inclusive or exclusionary outcomes. An important aspect of this question also relates to the differential effect on formal versus informal businesses, given that many women-led businesses are in the informal sector.

2.2. *The Indonesian context*

2.2.1. *Political reform: decentralisation and inequality.* Following the Asian financial crisis of the late 1990s, political reforms in Indonesia led to the devolution of authority away from the Indonesian central government to district-level governments in 1999.⁴ Districts became responsible for their own affairs, with central government only retaining responsibility for finance, foreign affairs, defence, religion, and state administration (Ahmad & Mansoor, 2002; Talitha, Firman, & Hudalah, 2020). District governments control their own budgets and spending; however, they are restricted in their ability to raise revenue.

While intended to bring power closer to the people, the process contributed to inequalities between provinces and districts, especially given the uneven implementation and effectiveness of laws and reforms, including BER. District governments were unprepared for the new administrative burden (Nasution, 2016), which was exacerbated by a proliferation of districts and significant disparities in government capacity to effectively manage their jurisdictions (Talitha et al., 2020). While some districts had large areas but small populations and small governing capacities, cities such as Jakarta had a large population and high governing capacity relative to the size of the district (Nasution, 2016). Unfortunately, rather than disappearing, corruption manifested at the local rather than national level (Hadiz & Robison, 2005; Pepinsky & Wihardja, 2011).

Regional inequalities persisted despite decentralisation (Talitha et al., 2020). Indonesia's average gross regional product (GRP) per capita (non-mining, millions of Rp) was 10.15 in 2013, with only three provinces well above this average: East Kalimantan (22.69), Riau Islands (25.67), and Jakarta (47.78). Twenty-eight provinces are below the Indonesian average, with the lowest being East Nusa Tenggara at 2.98. There is little adjustment of government grants, either to target inequalities or to address differences in operating costs of different local governments (Nasution, 2016), exacerbating these differences.

This political context has implications for BER since it shapes regional capacities and incentives. When the business licencing authority was decentralised to local districts, for example, the number of licences required and regulations to be complied with increased, in part owing to local district governments seeing this as a rare new opportunity to raise revenue (Steer, 2006).

2.2.2. *Economic and business environment reform.* President Yudhoyono came to power in 2004 and his regime is praised for the Indonesian economy's relatively robust performance during the global financial crisis, although he is also criticised for failing to tackle persistent poverty and fundamental problems with infrastructure (Manning & Miranti, 2015). Towards the end of Yudhoyono's presidency the economic environment became less liberal, more protectionist, and less transparent as a result of lobbying by large businesses (Mietzner, 2012). That said, some significant albeit piecemeal BERs were carried out, including in the areas of trade, access to credit and, particularly relevant for this study, business licencing (World Bank, 2012, 2014; World Bank & IFC, 2013).

A series of reforms addressing complex and difficult licencing procedures stemming in part from decentralisation and creating disincentives for starting, formalising or expanding business activities was implemented in 2010–12 (Asia Foundation, 2007; Rothenberg, Gaduh, et al., 2016). These reforms reduced the number of procedures required and the cost involved, and created an online service (World Bank & IFC, 2013). It was estimated that if the reforms could cut the time necessary to expand a business by 4.5 days, it would raise the willingness of

companies to invest by 10 per cent, as well as reducing the opportunity for bribery and corruption (Ing, Magiera, & Widiana, 2015; Steer, 2006).

A key element of simplifying business licencing was the one-stop shop reform, *Pelayanan Terpadu Satu Pintu (PTSP)*. One-stop shops (OSS) as a means of easing licencing procedures were first introduced in the 1990s and further expanded in 2006. However, presidential instruction 27/2009 created the framework for all licencing authority to be delegated from 16 ministries to one single agency, Indonesia's Investment Coordinating Board (Ing et al., 2015; Mourougane, 2012). Prior to 2001, businesses were required to register through their local governments, but registrations and licences were approved centrally. With the OSS, all activities required to register/licence a business would be done in one location, with one counterparty at district level having the authority to grant the licences, based on established standard operating procedures, transparent information for licence applicants, and channels for raising complaints. The intention is to reduce registration costs and streamline business licencing (Rothenberg, Gaduh, et al., 2016; Steer, 2006).

The decisions about when an OSS would open and the scope of services it would provide were made independently at the district level (Asia Foundation, 2007). Although implemented with differing levels of success in different regions, assessments of the reform in terms of simplifying licencing procedures and improving costs have broadly been positive (Anwar, 2015; Umar et al., 2019; Wahid, 2013). However, one study which assessed whether the reform encouraged formalisation found little evidence that the programme reduced the rates of informality (Rothenberg, Gaduh, et al., 2016).

2.2.3. Gender in the Indonesian economy. Women are highly active in running enterprises in Indonesia, although these tend to be smaller than those led by men and concentrated in specific sectors of the economy. Roughly 60 per cent of all micro, small and medium-sized enterprises (MSMEs) across the country are estimated to be run by women (Hani, Rachmania, Setyaningsih, & Putri, 2012); but men control 66 per cent of medium-sized enterprises in urban areas (IFC, 2016) and an even greater proportion of large enterprises. Women-led firms dominate in labour-intensive sectors which have relatively lower skill, technology, and capital requirements, including food and beverages, and garments and textiles. In textiles and garments, for example, almost 90 per cent of micro and small enterprises are led by women (Istandari & Anandhika, 2019.). Women also dominate in the trade, hotel and restaurant sectors (Tambunan, 2009; World Bank, 2016). Men dominate in manufacturing, technology, and capital-intensive industries (IFC, 2016).

There is a gender gap in entrepreneurship, with male-led businesses outnumbering female-led businesses and entrepreneurs, but there has been a desire from the Indonesian government to increase levels of female entrepreneurship through various support programs, often run in conjunction with NGOs or foreign organisations attempting to increase women's capabilities (Tambunan, 2017). However, women still face constraints in entrepreneurship in Indonesia which often align with those identified in the broader literature on women in business. The main constraints identified are lack of access to training programs for women in rural areas, and cultural or affordability barriers for those who live in cities. Lack of formal education is another constraint which again appears to have a geographical component, with there being a greater prevalence of educated female entrepreneurs in more developed parts of the country, in particular on the islands of Java and Sumatera. Thirdly, social and cultural constraints on women's freedom of movement and property rights; and finally lack of access to finance (Tambunan, 2017).

A high percentage of firms in Indonesia are informal, characterised by small size, low productivity, low wages, serving local markets, having managers with low educational attainment and lacking legal status and protections. Roughly 45 per cent of women working in the informal sector are entrepreneurs, slightly higher than for men (Babbitt, Brown, & Mazaheri, 2015).

Entrepreneurs may choose informality due to structural exclusions based on gender, ethnicity or education, for example, as well as high regulatory barriers to formality (Babbitt et al., 2015; Rothenberg, Gaduh, et al., 2016). Although accurate measurements are difficult, one attempt to estimate the size of this sector in Indonesia approximated that more than 93 per cent of all firms are informal, including 96 per cent of micro firms and 93.2 per cent of small firms. However, based on World Bank data, only 18 per cent of medium firms and 10.9 per cent of large firms were categorised as informal (Rothenberg, Gaduh, et al., 2016). Informal firms face a number of particular challenges beyond small size and low productivity. For example, reasons cited for informal enterprises in Indonesia to seek formalisation include greater security of operation, especially for those from ethnic minority groups, and to improve access to credit, especially for women-led businesses (Babbitt et al., 2015).

Many small, informal enterprises led by women are what may be termed ‘necessity’ rather than ‘growth-oriented’ enterprises, without an intention or ability to grow but providing vital livelihoods for the individuals involved. According to the Global Entrepreneurship Monitor, 19 per cent of entrepreneurial activity in Indonesia is necessity driven, but the level is higher amongst women at 21 per cent, versus 17 per cent for men (Kelley, Singer, & Herrington, 2015) and likely to be higher still among smaller firms. Growth-oriented women entrepreneurs in Jakarta have cited lack of support from the family and difficulty in getting a business licence, as well as ‘other’ constraints like inflation and market access as key barriers (Tambunan, 2017). When registering businesses, women in Indonesia are also more likely to report illegal payments as an issue (IFC, 2016). Although gender may affect registration processes, education, affluence, and age are also important factors. One survey of informal enterprises in Sumatra and Java found that roughly half of all entrepreneurs would like to formalise their business, with a slightly higher percentage of women reporting a desire to formalise, although the difference was not statistically significant (Babbitt et al., 2015).

3. Framework and methodology

3.1. Framework

Business licencing regulates business entry into (formal) markets and conduct within these markets. It includes permits, certifications and notifications⁵ that create obligations and rights for businesses. Those firms which do not meet licencing conditions may be fined or have certain activities or entire operations shut down (IFC, Multilateral Investment Guarantee Agency, & World Bank, 2010). While such registration procedures are necessary, inappropriate or poorly administered licencing regimes create undue costs and uncertainty for businesses, and create opportunities for corruption. These conditions deter investment and other business activity, undermining competition and innovation, and discouraging formalisation (IFC et al., 2010).

Figure 1 outlines the different units of analysis and expected outcomes from BER. BER is intended to reduce direct or opportunity costs and risks to business by reducing the number of licences required or the procedures needed to obtain a licence, and reducing the average number of days and/or the cost to obtain licences. This simplification is expected to encourage new growth-oriented firm entry, registration of enterprises at the margins of formality (Rothenberg, Gaduh, et al., 2016), and investment in improving or expanding business operations. These behavioural changes are visible in improved firm performance measured, for example, in terms of productivity improvements, increases in sales, turnover or net income, or firm growth (Herzberg, 2008; IFC et al., 2010; White & Fortune, 2015). These firm-level changes are expected to stimulate greater competition, economic growth, job creation and higher tax revenue (White & Fortune, 2015).

As discussed in the literature review, the impact of BER on gender equality is indirect, through firm performance, and is influenced by the ways in which reforms specifically affect firms led by excluded groups. In this study, the focus is particularly on enterprises led by

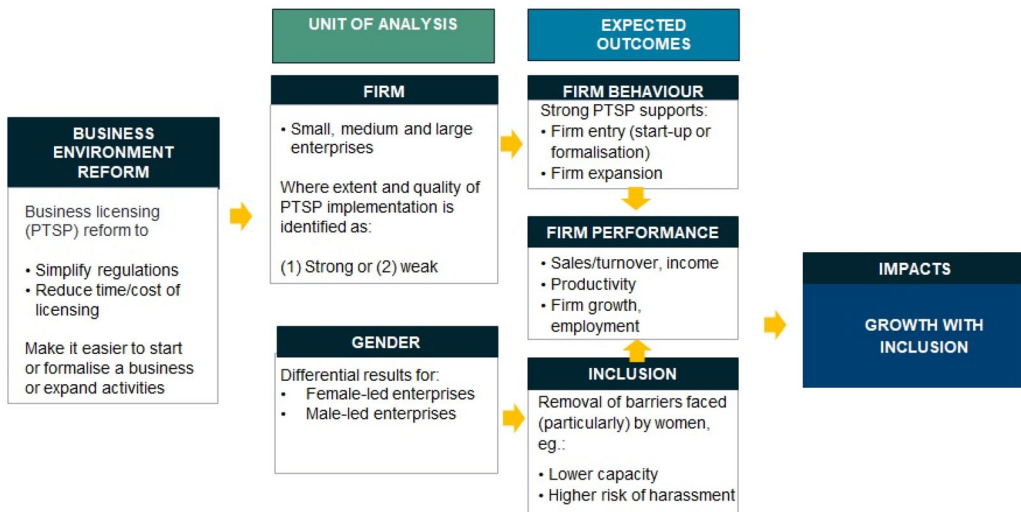


Figure 1. Unit of analysis and outcomes of BER.
Source: Authors' own.

women; however, elements are also relevant to minority business leaders, those with lower educational attainment, and those living in rural areas. If BER resolves structural barriers faced by these groups, it can contribute to inclusion. However, if these enterprises are not reached by reforms, or do not benefit sufficiently from them, then BER is likely to contribute to exclusion or growing inequality.

In the specific case of licencing reforms, the literature shows that women-led businesses are likely to be disproportionately negatively affected by a poor business environment, including as a function of the size, sector or formality of the businesses they run. Conversely, women should stand to benefit disproportionately from BER if it addresses key issues they face. These include:

- Less capability (time, money, skills) to deal with complex and time-consuming procedures, due to lower levels of education, a dual domestic and business role, and limited funds to hire lawyers or others to help them with compliance;
- Largely fixed costs of complicated procedures (that is, unrelated to enterprise size), meaning they are relatively greater for smaller than larger businesses (Ellis, 2007);
- Difficulty travelling to administrative centres to complete registration procedures, especially where these are located in distant administrative centres; and
- Greater susceptibility to harassment and requests for bribes.

3.2. *Empirical methodology*

We examine how (variation in the extent of) PTSP implementation⁶ is associated with changes in firms' outcomes, and whether there are differential effects depending on the gender of the leadership. The PTSP reform was selected for analysis because despite earlier OSS efforts, it was not until 2009 that the reform really started expanding, which continued until 2013. In other words, although earlier OSS arrangements existed in some districts, implementation until 2009 was very slow. Following the reform, however, there was a near doubling of districts which were implementing OSSs, from 58 per cent in 2009 to 90 per cent in 2013. Assessments of the quality of implementation have been broadly positive (Anwar, 2015; Umar et al., 2019; Wahid, 2013), although the quality of reform is clearly stronger in some regions than others (Mourougane, 2012; Steer, 2006; Umar et al., 2019; Wahid, 2013).

By 2015, we would expect to see PTSP affecting business performance although with greater effects where implementation was strongest. Our approach, therefore, is to assess the effect of PTSP to understand whether from 2009 to 2015, differences in implementation across provinces translated to any differences in business performance, and how that varies especially when we differentiate leadership based on gender.

The analysis involved identifying provinces using a set criteria related to ‘implementation’ – that is, differentiating between provinces with faster and better PTSP coverage in districts, where firms are likely to benefit fully from the reform (treatment); and, those with weaker coverage (control).⁷ Then, we compare similar firms before and after PTSP implementation, explaining the likelihood of having benefitted fully from PTSP based on differences in its implementation and examining its effect on various outcomes. This quasi-experimental approach involves three steps (Caliendo & Kopeinig, 2008; Imbens & Wooldridge, 2009) as described below.

We begin with Propensity score matching (PSM), estimating the likelihood of full implementation of the PTSP programme (or the ‘propensity score’). A major concern in assessing the effect of PTSP is that the programme was not randomly assigned, as a result of which our estimates may be confounded. The main challenge is therefore in constructing the credible counterfactual. The variation in the extent of implementation of PTSP across regions is likely driven by several characteristics, which may, in turn, also be correlated with business outcomes. We deal with this potential selection bias by matching and comparing groups that had better implementation (OSS) and those that did not (Non-OSS), which are similar per a set of observable characteristics; and, identify firms in Non-OSS groups that were like the OSS ones before the full extent of the reform was implemented. To do this, we use PSM with a set of characteristics (Z) that can, in principle, drive the likelihood of benefiting fully from the PTSP programme: size, firm age, sector, subsector, legal status, state owned, fixed assets, credit and informality (Table A1 presents summary statistics for these variables, reports the means, standard deviations, and sample sizes of variables). Using information on these observable characteristics, we estimate the propensity score, which can be written as follows:

$$OSS = \alpha + \beta Z + \varepsilon \quad (1)$$

Where OSS is a binary variable equal to one for meeting the implementation criteria and zero for the others. Z is the vector of observed characteristics of firms and ε is an error term. We estimate the propensity score, defined as the conditional probability of treatment given pre-participation characteristics using the logit model (Abdulai & Faltermeier, 2009; Sianesi, 2004). The estimation uses the nearest neighbour matching algorithm and the standardised bias approach proposed by Rosenbaum and Rubin (1983) to assess the quality of matches. In Supplementary Appendix A, Table A2 reports the details of the propensity score estimation (the benchmark estimation is used) and Table A3 and Figure A1 provide additional information on the balancing property between covariates before and after the matching procedure. In the unmatched sample, we observe statistically significant differences in means between treated and untreated subsets; after the matching procedure, all variables are balanced.

The PSM cannot control for unobserved heterogeneity. So, in addition, we use the Difference-in-differences (DiD) to estimate a counterfactual for the change in outcomes in each subgroup of matched units; and average those double-differences across matched subgroups. To evaluate the implementation differences in the PTSP programme on an outcome y , we estimate a regression equation for difference-in-differences (DiD) as follows:

$$y = \alpha + \beta OSS + \gamma t + \delta (OSS \cdot t) + \theta X + e \quad (2)$$

where y is the outcome, OSS is the indicator based on the implementation of the PTSP programme (1 for those that benefitted fully from the PTSP and 0 for those that did not) and t is

the time trend that is common to both these groups. X is a binary variable that identifies gender-based business leadership. β captures the specific effect for those that benefitted fully from the PTSP implementation; γ captures the effect of the time trend. The key parameters of interest are δ , the treatment effect, and θ , the effect for female-led businesses. The time trend controls for any nationwide targeting bias that is specific to the year 2009 but invariant across the provinces. This approach of PSM-DiD allows us to control for all observable and unobservable time-invariant variables that may influence δ and the outcome (Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Smith & Todd, 2005).

Additionally, we use the Diff-diff-diff (DDD) model to determine whether there is any heterogeneity in the effect of the reform on outcomes with respect to firms in the OSS group in terms of female leadership. This involves estimating the standard DiD where the treatment groups distinguish between female and male leadership for firms. We introduce an interaction term between OSS and female leadership that will capture the extent to which female leadership may relate with the effect of OSS on the outcome variables.

$$y = \alpha + \beta OSS + \gamma t + \delta_1 (OSS \cdot t) + \delta_2 (OSS \cdot X) + \delta_3 (OSS \cdot t \cdot X) \quad (3)$$

We compare the effect of the reform on outcomes for female-led firms (that is, difference between the change in female outcomes in treated relative to control groups) to its effect on outcomes for male-led firms.

The data are from the WBES, which asks registered small, medium and large firms (that is, over four employees)⁸ a broad range of questions; for example, about output, sales, employment, challenges with the business environment, registration, taxes and access to finance, among various others. The WBES has two years of available data for Indonesia: 2009 and 2015. Having two years of data is important in order to analyse changes in firm performance before and after the full extent of reform implementation, and in order to assess the effect of the reform on these changes. The data for Indonesia cover a random sample of small, medium, and large firm establishments⁹ that are stratified by industry, size and region. A total of 1444 and 1320 firms were interviewed in 2009 and 2015 respectively – yielding a repeated cross-section of 2764 firms in total (Figure B1).

Our identification of the treatment groups is based on the extent of PTSP implementation by province in 2012 as reported in Figure 2. Using data on timing and locations of starting operations for PTSP offices (Badan Koordinasi Penanaman Modal, 2014; Rothenberg, Bazzi,

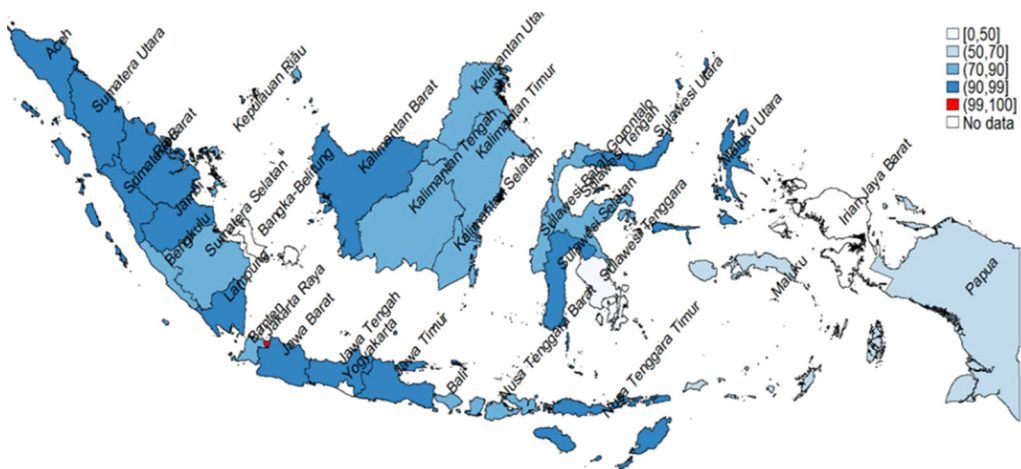


Figure 2. Districts with OSS coverage (%).

Source: Author’s own using data from Rothenberg, Gaduh, et al. (2016). Licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).

Nataraj, & Chari, 2016), along with information on coverage across districts, we define three alternate definitions for treatment groups as binary indicators (1 and 0):

- **Treatment (i):** 1 denotes coverage in all districts within province by 2012 and first introduced between 2007 and 2012, 0 otherwise. This definition identifies **Jakarta** as the treatment province;
- **Treatment (ii):** 1 denotes coverage in 50 per cent districts within province by 2012 and first introduced between 2007 and 2012, 0 otherwise. This definition identifies **Jakarta, Bali, Banten, and Lampung** as treatment provinces;
- **Treatment (iii):** 1 denotes coverage in 50 per cent districts within province by 2012, excluding Jakarta, and first introduced between 2007 and 2012. This definition identifies **Bali, Banten, and Lampung**, and allows us to separate effects for the provinces other than Jakarta.

For gender identification of business leadership, we use information on females in top management positions to define a binary indicator (1 and 0) where 1 indicates female business leadership (Female) and 0 indicates male leadership (Male). The literature includes different definitions for female leadership, for example, majority of board membership is female, and this can often vary on any range of ownership figures – example greater than 50 per cent board membership (Bardasi et al., 2011; Ellis, 2007; Klapper & Parker, 2011; Simavi et al., 2010). However, our data does not provide the composition of top managers. Nonetheless, it helps us identify firms with women in top positions. Table 1 reports the number of male and female-led firms, distributed by size, and across the nine provinces, by year. Across all provinces, the

Table 1. Number of male and female-led firms, by size, across provinces in Indonesia, by year

2009	Small (<20)		Medium (20–99)		Large (>100)	
Province	Male	Female	Male	Female	Male	Female
Bali	15	12	26	7	8	3
Banten	41	7	33	6	31	8
Dki Jakarta	58	24	31	9	23	8
Jawa Barat	118	35	53	11	61	14
Jawa Tengah	105	64	43	6	36	3
Jawa Timur	105	61	45	13	37	8
Lampung	31	11	9	3	6	2
Sulawesi Selatan	37	12	10	2	2	2
Sumatera Utara	42	24	10	1	4	0
All	552	250	260	58	208	48
2015	Small (<20)		Medium (20–99)		Large (>100)	
Province	Male	Female	Male	Female	Male	Female
Bali	26	7	35	9	13	7
Banten	25	8	37	7	53	20
Dki Jakarta	39	14	42	11	56	11
Jawa Barat	64	7	49	4	54	24
Jawa Tengah	47	26	58	6	50	4
Jawa Timur	67	25	83	10	30	3
Lampung	34	7	32	3	20	0
Sulawesi Selatan	40	5	30	3	17	0
Sumatera Utara	24	17	26	7	23	1
All	366	116	392	60	316	70

Source: Author's own, with data from World Bank (2016).

Note: This table reports the number of firms in the WBES data, distinguishes male and female leadership, distributed by size, and across the nine provinces, by year.

number of firms with female leadership is significantly lower than those with male leadership. The majority of female-led firms are small firms, although the number of medium and large firms has increased marginally across the two years.

Finally, in terms of outcomes, we examine three indicators (Figure A3):

- **Sales:** Helps examine any effects through improved performance of firms, which could result from behavioural changes as a result of the reform, including in terms of opportunity costs and risks to business.
- **Employment:** Measured by the number of permanent and full-time employees in the given fiscal year, allowing us to capture for instance, if as businesses invest and expand, new jobs are created.
- **Number of medium and large firms:** Measured at the level of province and sector in a given year, to analyse any potential entry or expansion of larger firms as a result of the licencing reform, as well as indirect job effects.

It is important that we acknowledge the likely limitations to our approach. First, note that we are not directly comparing treated firms with untreated/control firms (note that information of reform implementation at the firm-level is unavailable) but rather firms in provinces with widespread business reform implementation against (matched) firms in other provinces where reform implementation was less advanced. Second, the analysis is based on a repeated cross-section of firms which could pose the problem of changes in sample composition over time – however, as the WBES data were designed especially to track changes in the business environment over time, the results remain credible. Despite abovementioned challenges to identification, and in the absence of gender disaggregated data in relation to BER in countries like Indonesia, the results should be seen as credible and compelling evidence on the effects of business reform and the need to provide targeted support to women entrepreneurs.

4. Findings

We examine the effect of reform on outcomes by comparing the average change over time in the outcome variable for the treatment group, compared to the average change over time for the control group. In [Tables 2, 3, and 4](#), we report key estimates of the effects of the PTSP programme on firm performance, employment, and the number of medium and large-scale firms. Detailed results are attached in [Table C1 of Supplementary Appendix C](#).

4.1. Sales

In [Table 2](#), columns 1, 4, and 7 (DiD) compare changes in sales for groups that benefitted fully from OSS relative to control (positive and statistically significant). Columns 2, 5, and 8 (DiD-X) introduce female leadership (negative and statistically significant). In columns 3, 6, and 9 (DDD), we estimate the triple-differences model that compares the effect of OSS on outcomes of female-led businesses relative to male-led businesses. A key observation is that our DiD and DiD-X estimators are consistent in magnitude, sign and statistical significance across the specifications. However, this is not the case for the DDD effects, where results are more sensitive, in terms of the sign and significance of estimators.

Focussing on results from the DiD, we notice positive and significant effects for OSS. Overall, the results suggest that better PTSP implementation encouraged improved business performance. However, among the three treatments, the magnitude of the effect was the highest for treatment 1 (that is, in Jakarta), followed by treatment 2 and treatment 3. Interestingly, these differences suggest that better implementation in Jakarta had the greatest benefits for business performance than elsewhere.

Table 2. Effects of the PTSP programme on business performance (sales)

	Treatment 1			Treatment 2			Treatment 3		
	DiD (1)	DiD-X (2)	DDD (3)	DiD (4)	DiD-X (5)	DDD (6)	DiD (7)	DiD-X (8)	DDD (9)
OSS × post	0.877*** (0.330)	0.895*** (0.329)	1.034*** (0.376)	0.799*** (0.231)	0.827*** (0.231)	0.732*** (0.270)	0.657*** (0.261)	0.682*** (0.261)	0.436 (0.305)
Female-led		-0.422*** (0.133)	-0.763*** (0.200)		-0.432*** (0.133)	-1.046*** (0.235)		-0.356*** (0.139)	-1.041*** (0.228)
Female-led × post			0.865*** (0.287)			0.646* (0.348)			0.640* (0.337)
OSS × post × female-led			-0.716 (0.786)			0.624 (0.573)			1.181* (0.646)
OSS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Post	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSS × female-led	No	No	Yes	No	No	Yes	No	No	Yes
R2	0.106	0.109	0.115	0.082	0.085	0.076	0.108	0.111	0.127
N	2338	2335	2335	2053	2051	2051	2037	2034	2034

Source: Author's own, with data from World Bank (2016).

Notes: This table reports the effects of OSS on firm sales. Each column presents coefficients from a different multivariate regression. The dependent variable is sales (log-transformed). OSS is a dummy that takes the value 1 for reform and 0 otherwise. Treatment 1 - 1 denotes OSS coverage in all districts within province by 2012 and first. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

The DiD-X results show that the main findings for PTSP are still valid across all three treatments, meaning that the effect for OSS has the same sign, magnitude and significance as in the DiD. Furthermore, female leadership has a negative and significant effect on business performance, indicating that there may be specific challenges related to the gender of leadership, which restrict sales growth. This gendered effect is greatest for treatment 2, when we consider Bali, Banten, and Lampung along with Jakarta. Focussing on Bali, Banten and Lampung (treatment 3), the results suggest a relatively reduced negative effect. A possible explanation for this may be that female-led firms may actually face relatively bigger challenges in expanding sales in the capital city.¹⁰

Finally, we consider the heterogeneous effects of female leadership in relation to PTSP in our DDD estimation. Results are broadly consistent in terms of the direction of the treatment effects for PTSP as in the DiD and DiD-X. However, effects differ in terms of size and statistical significance. The triple-difference coefficient for treatment 1 shows that sales for female-led firms were lower than male-led firms, but the effect is not statistically significant. The same coefficient, though not statistically significant, turns positive for treatment 2. Interestingly, for treatment 3, zooming in on Bali, Banten, and Lampung, the triple-difference coefficient suggests that the PTSP effect for sales is greater for female-led firms than for male-led ones, and the effect is statistically significant. An explanation for this may be that female-led firms in Bali, Banten, and Lampung benefitted relative to their male counterparts as a direct result of PTSP facing greater barriers in entrepreneurship but a preference for formalisation (Babbitt et al., 2015; Tambunan, 2017).

4.2. *Employment*

In Table 3, with respect to employment, a key observation is that our DiD, DiD-X and DDD estimators are different in magnitude, sign and statistical significance for treatment 1 as compared to treatment 2 and 3. Focussing on results from the DiD, we notice a positive effect for treatment 1 and negative effects for treatment 2 and 3 – but all three are insignificant. Overall, the results suggest that better PTSP implementation had no significant effect on employment, though firms in Jakarta may be employing marginally more employees than others.

The DiD-X results show that the effect for OSS has the same sign, magnitude and significance as in the DiD. Furthermore, female leadership has a negative and significant effect on employment, therefore indicating that again there may be specific challenges related to the gender of leadership, which may restrict increasing the number of employees. This gendered effect is comparable across all treatments, such that female-led firms may face similar obstacles to hiring more workers.

Finally, we consider the heterogeneous effects in our DDD estimation. Results for treatment effects are broadly consistent with the DiD and DiD-X. The triple-difference coefficient for treatment 1 shows that employment for female-led firms was lower than male-led firms, but the effect is not statistically significant. The same coefficient, though not statistically significant, turns positive for treatments 2 and 3. These results suggest that there were no clear employment effects as a result of PTSP.

4.3. *Medium and large firms*

In Table 3, with respect to the number of medium and large-scale firms by province and sector, our DiD and DiD-X estimators are consistent in magnitude, sign and statistical significance across the specifications. Focussing on results from the DiD and DiD-X, we notice positive and significant treatment effects. Overall, the results suggest that better PTSP implementation was associated with an increase in the number of medium and large-scale firms identified by province and sector. However, among the three treatments, the effect for Bali, Banten, and

Table 3. Effects of the PTSP programme on employment

	Treatment 1			Treatment 2			Treatment 3		
	DiD (1)	DiD-X (2)	DDD (3)	DiD (4)	DiD-X (5)	DDD (6)	DiD (7)	DiD-X (8)	DDD (9)
Employment									
OSS × post	0.199 (0.187)	0.213 (0.186)	0.290 (0.212)	-0.034 (0.131)	-0.013 (0.131)	-0.010 (0.149)	-0.145 (0.151)	-0.124 (0.150)	-0.156 (0.171)
Female-led		-0.358*** (0.075)	-0.397*** (0.113)		-0.357*** (0.075)	-0.480*** (0.129)		-0.345*** (0.080)	-0.480*** (0.127)
Female-led × Post			0.102 (0.162)			0.017 (0.191)			0.017 (0.188)
OSS × post × female-led			-0.323 (0.444)			0.057 (0.315)			0.207 (0.362)
OSS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Post	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSS × female-led	No	No	Yes	No	No	Yes	No	No	Yes
R2	0.106	0.109	0.115	0.082	0.085	0.076	0.108	0.111	0.127
N	2338	2335	2335	2053	2051	2051	2037	2034	2034

Source: Author's own, with data from World Bank (2016).

Notes: This table reports the effects of OSS on employment. Each column presents coefficients from a different multivariate regression. The dependent variable is employment (log-transformed). Treatment 1: 1 denotes OSS coverage in all districts within province by 2012 and first introduced between 2007 and 2012, 0 otherwise. This definition identifies Jakarta as the treatment province; Treatment 2: 1 denotes OSS coverage in 50 per cent districts within province by 2012 and first introduced between 2007 and 2012, 0 otherwise. This definition identifies Jakarta, Bali, Banten, and Lampung as treatment provinces; Treatment 3: 1 denotes coverage in 50 per cent districts within province by 2012, excluding Jakarta, and first introduced between 2007 and 2012. This definition identifies Bali, Banten, and Lampung, and allows us to separate effects for the provinces other than Jakarta. OSS is a dummy that takes the value 1 for reform and 0 otherwise. Post takes a value of 1 for 2015 and a value of 0 for 2009. *** correspond to statistical significance at the 1 per cent, 5 per cent, and 10 per cent levels, respectively.

Table 4. Effects of the PTSP programme on number of medium and large-scale firms

	Treatment 1			Treatment 2			Treatment 3		
	DiD (1)	DiD-X (2)	DDD (3)	DiD (4)	DiD-X (5)	DDD (6)	DiD (7)	DiD-X (8)	DDD (9)
Medium/ large firm									
OSS × post	4.594*** (1.228)	4.640*** (1.227)	4.208*** (1.398)	10.636*** (0.817)	10.712*** (0.817)	9.763*** (0.926)	12.212*** (0.903)	12.291*** (0.902)	11.264*** (1.023)
Female-led		-0.742 (0.497)	-0.673 (0.744)		-0.840* (0.471)	-0.313 (0.782)		-0.869* (0.479)	-0.313 (0.743)
Female-led × post			-0.167 (1.069)			-1.110 (1.414)			-1.046 (1.594)
OSS × post × female-led			1.899 (2.926)			4.579** (1.974)			4.971** (2.188)
OSS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Post	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSS × female-led	No	No	Yes	No	No	Yes	No	No	Yes
R2	0.059	0.060	0.061	0.185	0.187	0.189	0.260	0.262	0.264
N	2338	2335	2335	2452	2449	2449	2151	2148	2148

Source: Author's own, with data from World Bank (2016).

Notes: This table reports the effects of OSS on firm growth. Each column presents coefficients from a different multivariate regression. The dependent variable is the number of medium and large-scale firms. OSS is a dummy that takes the value 1 for reform and 0 otherwise. Treatment 1: 1 denotes OSS coverage in all districts within province by 2012 and first introduced between 2007 and 2012, 0 otherwise. This definition identifies Jakarta as the treatment province; Treatment 2: 1 denotes OSS coverage in 50 per cent districts within province by 2012 and first introduced between 2007 and 2012, 0 otherwise. This definition identifies Jakarta, Bali, Banten, and Lampung as treatment provinces; Treatment 3: 1 denotes coverage in 50 per cent districts within province by 2012, excluding Jakarta, Bali, Banten, and Lampung, and allows us to separate effects for the provinces other than Jakarta. Post takes a value of 1 for 2015 and a value of 0 for 2009. ***, **, *, and * correspond to statistical significance at the 1 per cent, 5 per cent, and 10 per cent levels, respectively.

Lampung (treatment 3) has the highest magnitude, followed by treatment 2 and treatment 1. Interestingly, these differences suggest that varied implementation likely had differential effects across provinces.

The DiD-X results show that the main findings for PTSP have the same sign, magnitude and significance across all three treatments, as in the DiD. Furthermore, female leadership has a negative and significant, though marginal, effect on the number of medium and large-scale firms for treatments 2 and 3, therefore indicating that there may be specific challenges again related to the gender of leadership, possibly sector-specific ones, which may restrict women from leading larger businesses. Interestingly, in this case, this gendered effect is greatest for treatment 3, when we consider Bali, Banten, and Lampung without Jakarta. Zeroing in on Jakarta (treatment 1) suggests there is no significant effect for the gender of leadership. A possible explanation for these results may be that female-led firms face relatively greater challenges in leading larger businesses outside the capital city.

Finally, when we consider the heterogeneous effects of female leadership in relation to PTSP in our DDD estimation, results are broadly consistent in terms of the direction of the treatment effects for PTSP as in the DiD and DiD-X. However, triple-difference coefficients differ in terms of statistical significance. While across all three treatments, we see that generally, the number of medium and large-scale female-led firms was marginally greater than male-led firms, in direct relation to PTSP, this is not statistically significant for treatment 1. The same coefficient turns positive and statistically significant for treatments 2 and 3. Interestingly, this suggests that the PTSP effect is greater for female-led firms than for male-led ones outside Jakarta. An explanation for this may be that female-led firms in Bali, Banten, and Lampung show marginal benefits in terms of the scale of the business relative to their male counterparts as a direct result of PTSP.

There is little definitive evidence in the literature on how different provinces or cities compare. Tambunan (2017) states that there are differences in education levels and access to training between provinces, and while this study focuses largely on constraints facing women in Jakarta, it does also encompass women from nearby cities in other provinces including Banten province, albeit to a lesser extent. However, the study fails to make regional comparisons. There are also studies of female entrepreneurs in specific provinces or regions: Tahir and Raharja (2021) identify constraints on female entrepreneurs in Banten province including lack of knowledge and skills, and lack of access to information and finance; and Yani et al. (2019) identify economic, commercial, financial, socio-cultural, and familial barriers to entrepreneurship among women in the Greater Jakarta region (encompassing cities in both West Java and Banten provinces). However, while these studies all identify similar barriers to the success and growth of female entrepreneurs, they do not provide comparison across regions. In order to better explain the differences found in this study of the influence of PTSP in different provinces, further research should be done into understanding how barriers to female entrepreneurship manifest regionally and how PTSP can help to alleviate these.

Additionally, we run other specifications to test the robustness of our results. First, we explored two alternate matching criteria to examine the sensitivity of the estimates for each treatment (Models 1 and 2 in Table A2 in [Supplementary Appendix A](#)). Second, we employed a different measure for female leadership based on ownership (ownership information in WBES is based on data on owners being all men, all women, majority men, majority women) and examined robustness across treatments effects ([Supplementary Appendix D](#)). Overall, the results from the robustness exercises are in line with benchmark results in terms of the direction and significance of treatment effects.

To mitigate further concerns, we also provide three placebo tests (Table E1 in the [Supplementary Appendix E](#)). First, we assign the treatment (falsely) to a randomly selected province; for this placebo 1 (columns 1–3), we assume Lampung, Sulawesi and Sumatera (randomly selected) as treated and other provinces as non-treated [We also tried different versions

of this placebo treatment (that is, different random combination of provinces), and results are similar]. Second, we examine the effects of the treatment on some firm-level outcomes that should in theory not be effected by the business reform; for placebo 2 (columns 4–6), we try the outcome variable - if firm had made application for construction permit in last two years before survey, that we believe is arguably not directly affected by the OSS reform. Third, we examine how results change if leaving out a particular control province; for placebo 3 (columns 7–9 in above table), we randomly drop Bali [we have also experimented in dropping other provinces and results are comparable]. Overall, looking at results across all three placebo tests, we no longer have a consistent and significant positive effect for OSS – this provides further assurance for our overall results.

5. Discussion

Our results demonstrate a general link between business licencing reform and firm performance, but with differences across regions and by outcomes. First, we find no clear differential effects for firm performance in favour of women-led firms in Jakarta; while in Bali, Banten, and Lampung, the result is different, as we find a more direct, positive outcome for female-led firms relative to those led by men over time. Second, while women-led firms hired fewer people in Jakarta, in the other three provinces, female-led firms actually employed a marginally greater number of workers than their male counterparts, however, with no clear relationship with business licencing reform. Third, while the number of women-led medium and large firms over time remained small, there is a marginal increase outside Jakarta relative to male-led counterparts.

5.1. *Business licencing reforms and sales*

As per the framework (Section 3.1), business licencing reforms can be theorised to disproportionately benefit women-led firms, because women face greater licencing barriers stemming from lower levels of education, smaller firm size, time poverty, greater difficulty of travelling to administrative centres and vulnerability to bribes (Doing Business, 2008; Ellis, 2007; Simavi et al., 2010). Our results do show a general link between business licencing reform and increased firm sales, likely related with reduced direct or opportunity costs and risks. However, in Jakarta, we do not find a clear differential effect in favour of women-led firms.

There are a number of reasons why this expected boost for female-led enterprises may not materialise. One is a lack of awareness of the reforms and their potential benefits among more marginalised businesses. Umar et al. (2019) studied business licencing reform in the Bone regency in South Sulawesi, finding that those who used the OSS were well informed and able to self-manage their applications, but that in general, ‘socialisation events’ among business owners were not well attended and there was low uptake of OSS services among the broader population.¹¹ The study authors also note that issues of socialisation are not unique to Sulawesi, with poor understanding in many areas, including Jakarta.

Based on other studies on informality and business environment (Bird, 2013; Rothenberg, Gaduh, et al., 2016; Wennmann et al., 2017; White & Fortune, 2015), there is also reason to believe that smaller and informal firms, often led by women, either know about the reforms but choose not to register, or register but fail to benefit. While informality is often assumed to stem from burdensome licencing laws, these studies find that it is primarily a response to broader institutional weaknesses and competitive dynamics (Bird, 2013; Mallon, 2004). These dynamics are not improved by reforming licencing. The reforms instead ease the entry of new firms and increase competitive pressures on existing informal firms, which lack the economies of scale for cost efficiencies. Women-led firms in labour-intensive sectors such as food and beverages, and textiles and garments, where low technology and capital requirements already mean low barriers to entry (IFC, 2016), may be particularly vulnerable. Furthermore, as male-led firms in

Indonesia were already estimated to earn approximately four times as much revenue as those run by women (Istandari & Anandhika, 2019), the findings in Jakarta point to gender gaps persisting unless targeted assistance and other measures are used to level the playing field.

In Bali, Banten, and Lampung, however, the result is different. The findings are that the reform has a more direct, positive outcome for female-led firms relative to those led by men over time. Since there is significant variation in the characteristics of these provinces, it is hard to generalise. However, it is likely that as you move away from Jakarta, and especially to more rural areas within these provinces, that the dynamics and benefits of reform change. For example, one study has found that urban entrepreneurs give tax and other regulations as a reason for preferring informality, but this pattern does not hold in rural areas, possibly because of greater enforcement in the city. In addition, the same study finds that urban women are less likely than urban men to prefer formalisation, but rural women are more likely than rural men to prefer formalisation (Babbitt et al., 2015). For those women informal entrepreneurs in rural areas that do want to register their business, the OSS reform may thus help them overcome difficulties in travelling, time constraints and vulnerability to harassment (IFC, 2016; Tambunan, 2017). Other related constraints which particularly face women from minority ethnic backgrounds include discrimination, lack of personal access to decision-makers in distant bureaucracies, and language barriers, if they speak native or traditional languages rather than Bahasa (Babbitt et al., 2015; Mallon, 2004; Tambunan, 2009).

5.2. Business licencing reforms and employment

For all firms, employment increased between 2009 and 2015. In 2009, women-led firms across all provinces hired fewer people than similar firms led by men; a finding which is consistent with other empirical studies for I. There is a gender gap in entrepreneurship, with male-led businesses outnumbering female-led businesses and entrepreneurs, but there has been a desire from the Indonesian government to increase levels of female entrepreneurship through various support programs, often run in conjunction with NGOs or foreign organisations attempting to increase women's capabilities (Tambunan, 2017). Indonesia (IFC, 2016; Istandari & Anandhika, 2019). Explanatory factors are likely to be a mixture of market constraints which differentially affect women and men, as well as motivational differences among entrepreneurs in terms of their growth orientation (Istandari & Anandhika, 2019; Kelley et al., 2015). In 2015, while this gap between men and women persisted in Jakarta, in the other three provinces, female-led firms actually employed a marginally greater number of workers than their male counterparts.

Importantly, however, the findings do not show a relationship with business licencing reform. This result may seem both surprising, given the increase in firm sales, and disappointing, given the development benefits of job growth. However, the relationship between sales and employment is in fact not straightforward, and in other countries it has been shown to vary based on sector, growth-orientation, and the use or not of family labour (Colombo, Massis, Piva, Rossi-Lamastra, & Wright, 2014; Delmar, Davidsson, & Gartner, 2003; McKelvie & Wiklund, 2010). The finding is also consistent with other studies that show limited evidence of jobs effects from business licencing reforms (Rahman, 2014; Warner, 2012; White & Fortune, 2015).

5.3. Business licencing reforms and medium and large enterprises

In contrast to the previous section, which considered changes in employment across all firms, here the focus is on the number of medium and large firms (that is, firms with over 20 employees). Interestingly, the pattern is similar to that observed for firm performance (sales). PTSP has contributed to an expansion in the number of medium and large firms over time, and specifically to a marginal increase outside Jakarta in women-led medium and large firms relative to

male-led counterparts. It should be noted, however, that despite this growth, the absolute number of medium and large firms, particularly firms led by women, is relatively small overall.

Business licencing reform could affect the number of medium and large firms through different pathways: the growth of small firms into larger firms, the formalisation of existing (informal) medium and large firms, and the entry of new medium and large firms. Although we cannot distinguish between these in the data, new medium and large-sized firm entry is likely to be the most important factor. First, in developing countries, most larger firms have not grown to this size. They begin large while small firms face key constraints to growth (IFC, 2013). Our findings on employment also support the notion that firm growth is not the main mechanism. Second, although business licencing reform is often intended to support formalisation, several studies, including in Indonesia, suggest they have failed to catalyse formalisation in the majority of cases (Rothenberg, Gaduh, et al., 2016; Wennmann et al., 2017; White & Fortune, 2015), or that the effect is small (Kaplan, Piedra, & Seira, 2011). On the other hand, complex business registration procedures are a clear barrier that particularly affects new startups (Deininger, Jin, & Sur, 2007), especially those with the intention to operate formally.

Across both male and female-led businesses, this rise in (new) medium and large firms was most pronounced in the provinces outside Jakarta. As discussed under sales, this result may stem from differences in the quality of implementation. Alternatively, firms outside Jakarta may have previously faced greater constraints in registering a new business, meaning that reform was more advantageous. In either case, it is notable that there are positive effects outside Jakarta for women-led firms relative to those led by men. As already discussed, women-led firms are generally smaller than those run by men, so in terms of a growth in assets controlled by women, this result is positive from a gender and inclusion perspective.

It is notable, however, that women leading larger businesses in Indonesia are likely to already be relatively better off – more educated and wealthier, especially those in more developed areas like Sumatra, Java and Bali (Tambunan, 2009). On the other hand, this growth in the number of medium and large firms controlled by women offers other inclusion benefits. In particular, studies both in Indonesia (Istandari & Anandhika, 2019) and internationally (Cirera & Qasim, 2014) show that women-led firms are more likely to employ other women than male-led firms. Since women also tend to lead businesses in more labour-intensive sectors such as food and beverages, and textiles and garments (IFC, 2016), a growth in medium and large firms led by women creates economic opportunities for other, poorer, women.

5.4. Policy implications

Based on these findings, we recommend that future BER policies should: (i). Ensure services are readily available beyond the main cities; (ii). Invest in targeted socialisation efforts to reach growth-oriented businesses led by women or minority business leaders likely to benefit; (iii). Prioritise business environment measures that are relevant for the informal sector and create the conditions for them to formalise; (iv). Couple general business environment improvements with targeted efforts to improve productivity and upgrading in sectors dominated by women. (iv). As COVID-19 is likely to have differential effects, it is important that general business environment improvements should be coupled with targeted support for sectors, and especially women-led firms facing severe hardships in specific sectors. More generally, these BER recommendations should be considered as part of holistic recovery programmes that are expected to deliver on gender and inclusion.

6. Conclusions

This research investigates the relationship between BER and gender equality through an in-depth analysis of the PTSP business licencing reform in Indonesia between 2009 and 2015. It

finds that on average, there is evidence that firms improved performance (sales) as a direct or indirect effect of this reform, and while there may not be any significant employment effects, the reform appears to have encouraged a marginal expansion in the number of medium and large firms.

With respect to gender, male-led firms continue to run larger businesses, enjoy higher sales and employ more workers, and in Jakarta there is no evidence that the reforms have made inroads in changing this inequity. However, outside Jakarta, women-led firms appear to have experienced benefits relative to male-led firms, related to both firm performance (sales) and the number of medium and large-scale firms they run. Although the effect was small, it was significant. In addition, as more women run larger firms, it can be expected that they create new jobs for other, poorer women.

Business licencing reform was broad-based and not designed to have differential effects for specific sectors or types of firms, although smaller firms with less capacity (time, money, skills) to deal with complex and time-consuming procedures could have been expected to benefit the most. Bali, Banten, Jakarta and Lampung provinces were all identified as areas of high OSS coverage. The difference between Jakarta and the other three provinces is therefore most likely associated with different ways in which gender, firm performance, and business licencing interact across these different urban and rural settings.

Our findings suggest that PTSP led to neither unintended negative consequences for women-led firms, nor evidence of transformational change. Outside Jakarta, advances for women were achieved, while in Jakarta existing exclusions were maintained and arguably deepened. Stronger gender and inclusion outcomes would require deepening and expanding the positive achievements identified.

Notes

1. The business environment is the set of policies, laws and regulations which together govern business activities at the regional, national, sub-national and/or sectoral levels (Miles, 2016). BER involves improving policies, laws and regulations across key governance functions affecting, restricting, or delimiting trade, investment, and the operation of private enterprises. It also involves improving the overall institutional and organisational framework which determines the quality of governance and the capacity of public and private stakeholders to design and implement reforms.
2. Gender equality means women have full and equal exercise of rights, and access to socially, economically, and politically valued goods, resources, opportunities, benefits, and services (Haegeman & Schauerhammer, 2018).
3. Designed especially to track changes in the business environment over time, thus allowing, the assessments of reforms.
4. Devolution largely bypassed the provincial level for fear that empowering provinces could create fault lines for secession (Ahmad & Mansoor, 2002).
5. In Indonesia, these permits and licences typically include building permits (for constructing a building), nuisance permits (for businesses that generate noise and/or pollution), location permit (for businesses where there is no such disturbance), land use permits, and operational licences, which may include trading licences and industrial registration certificates (for the industrial and manufacturing sectors). Businesses must also register and obtain a company registration certificate after the have started operations. Licences such as the company registration and/or trade licence are often used to obtain financing (Ing et al., 2015; KPPD & Asia Foundation, 2011).
6. The Indonesian economy has been characterised by spatial differences in the concentration of economic activity, employment and output (Bazzi, Gaduh, Rothenberg, & Wong, 2016; Rothenberg, Bazzi, et al., 2016). Various policies and business reforms have also been implemented in a decentralised manner (Rothenberg, 2011). Although it is difficult to directly measure the impact of the reform, similar to Rothenberg, Gaduh, et al. (2016), we evaluate its effects by examining how differences in implementation of the programme in a province is associated with changes in various firm-level outcomes.
7. Though the reform is not a treatment in the traditional sense of the term, we use ‘treatment’ and ‘control’ groups to distinguish between firms that likely benefited fully from the reform and those that did not.
8. Using the WBES data, we look at only the sample of formal, registered firms. Any inferences for informal firms are indirect.
9. ‘Firm establishments’ is the unit of data collection in the WBES survey. We use firms henceforth.

10. Combes, Duranton, Gobillon, Puga, and Roux (2012), Sanfilippo and Seric (2016), and Essers, Megersa, and Sanfilippo (2021), who studied aspects of agglomeration and productivity differences in large urban areas/cities vis-à-vis smaller cities and peripheral regions, noted that big cities (that is, such as Jakarta) render competition between firms to be tough and, thus, favour the survival and growth of the most productive firms – which predominately are male owned firms.
11. Umar et al. (2019) describes ‘socialisation events’ as visits by licensing officers from the OSS to sub-district level to hold meetings with locals to inform them of the existence and benefits of the OSS. In response to low socialisation levels, the author adds that the ‘public at the lowest level’ will need to be reached using different methods, described as ‘door-to-door socialisation and not with conventional methods’.

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