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Concluding Remarks

This paper has shown that startup costs to entrepreneurship - which are emphasized by the Economics literature as determinant of long-run inefficiencies, in particular of long-lasting effects of income inequality - emerge as a result of contractual incompleteness when the supplier can be expropriated ex-post from her ex-ante outside option. Whenever contracts are complete or whenever they are not but the supplier cannot be expropriated even under renegotiation, collateral requirements are not economically justified. Nevertheless, other inefficiencies might arise, related to intensive margin investments, when contract incompleteness along with a positive probability of expropriation of entrepreneur's returns lead to a suboptimal level of specific investment.

A word might be said concerning startup costs of non-contractual nature, such as red tape, for instance. If on one hand it might be the case that under the presence of such costs inequality displays long-lasting effects on welfare and productivity - since without a deep pocket investor willing to finance it initial wealth necessarily matters for occupational choice -, in that case policy recommendations are completely at odds with what has been traditionally emphasized by the occupational choice literature: instead of improving the quality of the credit market, the focus should be in removing Government's inefficiency.

Essentially, while this literature has backed up the argument for improving credit market conditions so that constrained individuals are at least partially able to enjoy the returns from the higher productivity sector, we have shown that improving the operation of courts might be even more important, since under a variety of settings suppliers are willing to finance wealth-constrained individuals if contractibility and contract enforcement guarantee that she is not expropriated ex-post, in expectation, from her ex-ante outside option. Moreover, while unconstrained individuals's investment is not affected by credit market conditions, it is decisively contingent on the contractual environment whenever there is a positive probability that the entrepreneur is expropriated from its ex-post returns.

Additionally, we argued that a marginal decrease in litigation costs should

increase entrepreneurship and investment, as a consequence of enabling some constrained individuals to access courts' technology, what can be interpreted as a transition from missing courts to some contract enforcement for these individuals. These predictions were then taken to the data, exploring the creation of Special Civil Tribunals (JECs) in Brazil during the 1990's. We estimate a positive net effect of JECs on entrepreneurship, employer status and self-employment, although not on firm size. After controlling for a series of potential confounding effects, we find that these effects are robust through specifications, although heterogenous both in what comes to local average initial levels of these outcomes and to individual's position in the wealth distribution.

Estimated effects are much stronger for upper quintile individuals, which seem to be the marginal ones; these effects seem to be economic significant, reaching up to 12% of sample average in the period prior to JECs adoption for entrepreneurship and 17.2% to 38.5% for employer status. As for investment, estimated effects are not so robust through specifications. Effects on the upper quintile are positive for both measures of investment, while a negative effect for mid and lower quintiles is documented, probably due to new startups, which have a lower number of employees than previously settled business.

Some remarks must be raised at this point. Our model does not admit message games such as the ones discussed in Maskin and Tirole (1999), which arguable could circumvent limits to verifiability, and the reason for this is the ex-post lack of commitment of promises not to renegotiate, akin to the discussion in Hart and Moore (1999).

Other mechanisms, such as those involving the transfer of property rights, might be unfeasible since there are settings under which the unit of capital is physically incorporated into entrepreneur's final good.

Finally, our model does not contemplate the possibility of foreclosure rights to the creditor over debtor's assets, what would substantially limit the space of available mechanisms, following Hart and Moore (1998), in account of the possibility of default by the entrepreneur - what constrains the set of implementable contracts. Nevertheless, foreclosure rights would further decrease the need for upfront payments in our model, since they represent a guarantee of a minimum ex-post return to the supplier when the entrepreneur holds the bargaining power. Another aspect to be mentioned is that since our model has no uncertainty, there is no room for "optimal incompleteness", this is, it will never be in the best interest of the contracting parties to leave room for decisions ex-post concerning prices, in order to avoid inefficiencies linked to ex-ante contracting. The presence of "optimal incompleteness" would

nevertheless leave our results entirely unaffected, since our dimensions of interest - upfront payments and specific investment - are both decisions that have to be taken ex-ante.

Still, we have not developed a dynamic model. Although many interesting topics are left aside by this choice of framework – such as the entry decision into capital supply, or the choice of technology that conditions the subsequent structure of ex-post bargaining power –, we believe that the static setting is enough to highlight the main drivers of optimal collateral choice and its implications to entrepreneurship and investment while keeping the mathematical treatment to its simplest.

There are, of course, other aspects worth noticing. The mechanism of diminishing collateral requirements comes through decreasing the probability of the supplier being expropriated. Informal institutions (repeated interaction) also do that.¹ But the mechanism is different: courts increase the contractible subset, so that it compensates for even a certain expropriation under non-contractible ones, whereas repetition decreases the overall probability of expropriation by creating a difference in entrepreneur's continuation value of fulfilling the informal contract and that of, alternatively, fully expropriating the supplier on a given period. The latter mechanism relies on the future being highly valued (low enough discount rates), on indefinite repetition, and on some observability requirements that are not necessarily replicable without courts.

Essentially, one might wonder whether in general terms individuals could privately replicate the operation of courts. This question is motivated by a widespread view of the existence of minimal courts² able to enforce every contract through which parties might settle. But that is precisely the point of our discussion: when such courts' technology is not available, it becomes clear that the existence and operation of this third party is essential to determine the ownership and binding side-transfers of the expected cash flows of the project.³

Besides that, the interaction of formal and informal institutions might lead to non-trivial results.⁴ For Brazil, we have shown that this interaction might have indeed induced a negative effect of TPCs on entrepreneurship and investment. Carneiro (2003) argues that an informal or parallel justice, especially in slums, might have been disrupted by the introduction of the small claims' technology.

¹There is a large literature on relational contracts under limited commitment; see for example Carrasco and De Mello (2009).

²Using Anderlini et. al (2007)'s terminology.

³See Anderlini et al. (2007) for a discussion of other reasons why individuals might not be able to privately replicate courts' technology.

⁴See, for example, Halonen (2006) and Dixit(2007).

Last, we have come across the fact that readers tend to think of our results as matching those of debt *versus* equity in the optimal format of ex-post payments literature (e.g.: Diamond, 1984, under costly state verification, or Hart and Moore, 1998, under foreclosure rights to the creditor over debtor's assets) or those of optimal maturity (e.g.: Hart and Moore, 1994, which studies when long-term relationships can enable financing under lack of commitment). Just as a clarification, we do not have a word on the format of ex-post payments of the optimal contracts here derived (in particular, whether they are state-contingent, as in equity, or non-contingent, as in debt contracts); what is of interest for this paper is whether ex-ante payments are positive for the marginal individual.

To conclude, the empirical literature on institutions and growth has documented that, after controlling for property rights, access to justice plays no role in explaining differences in economic development (Acemoglu and Johnson, 2005). How do our results help interpreting these findings? In a nutshell, our discussion raises two words of caution concerning their empirical strategy: (i) although they advocate to estimate the effect of the legal environment on growth, their measure is actually one of costs of access to justice, not of contractibility or contract enforcement, and (ii) even as such, the comparative statics for the effects of litigation costs on growth must hold the other dimensions of the legal environment constant – what is certainly not the case when the source of variation is cross-country. The ideal experiment to assess its impact on growth would be an exogenous change in these costs under a constant legal environment concerning the other dimensions. Our empirical exercise is much closer to this goal.

Next steps should include a formal account of comparative statics concerning the effects of marginal changes in the dimensions of courts' operation on entrepreneurship and investment, as well as a formal extension of the baseline model to incorporate litigation costs and the decision whether or not to use courts' technology under unforeseen contingencies. Extensions of the empirical exercise are to include data on JECs for a larger set of municipalities, to test the effect of the reduction in costs of access to justice on the average municipal wage (since the model predicts it to be weakly increasing in entrepreneurship) and to incorporate a discrete choice setting such that we are able to estimate the effects of JECs within industry – the ideal framework, as our model suggests, since it is the closest to holding constant the other dimensions of the operation of justice.