

REPORT ON MASTER THESIS
CENTER FOR ECONOMIC RESEARCH AND GRADUATE EDUCATION

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TITLE OF THE THESIS:	Exogenous Crises and Technology Adoption: Evidence from the Effect of COVID-19 on FinTech Adoption

OVERALL ASSESSMENT

CONTRIBUTION: This thesis offers an empirical analysis exploring the relationship between the COVID-19 epidemic across countries and the adoption of “FinTech,” that is a set of tools for better handling of personal finances and assets via Information and Communication Technology (ICT). The thesis’ key claim is that such a relationship exists, is unidirectional (from COVID-19 to FinTech) and it is causal. A more tentative argument outlined at the end of the thesis is that the causal link is to be explained by public health restrictions as well as health concerns that would prevent people from visiting local physical branches of financial institutions. As a contribution it would be undeniably interesting, should the claims indeed stand methodological scrutiny (which is the main concern of this report, as outlined later). Yet, one can easily argue that the postulated mechanism is not specific to FinTech, as COVID-19 and the consequent public policy responses across the globe have undeniably accelerated the takeup of multiple types of ICT. In light of this, the specific result about FinTech appears less surprising.

METHODS: The empirical analysis of the thesis employs a battery of empirical techniques that are conventional in the practice of applied microeconometrics, such as OLS, IV-2SLS, DiD, and combinations thereof. The author seems to cautiously and knowledgeably use them, being aware of the standard professional practices related to their usage (consider e.g. the discussion about the first-stage F -statistic of IV-2SLS, and the validity of the instrument: the author appears to realize that his instrument has many issues while executing and discussing his estimates). I am however skeptical that these are the appropriate empirical tools to adopt in this setting. Let me elaborate. Processes of technological diffusion are known to follow a logistic curve over time, and for good theoretical reasons akin to those that motivate epidemiological models like SIR. In the thesis, the key dependent variable, i.e. the ratio of FinTech adopters in a country as deduced by survey data (which are implicitly assumed to deliver good estimates of the population parameter) is expected to follow in each country a logistic curve over time; since identification in the analysis is based off time variation in the incidence of COVID-19, this non-linearity must be taken into account. The issue is especially problematic when one attempts DiD estimation, as DiD compares changes in the temporal slope of the dependent variable of interest. Aside from issues of statistical power for the detection of violations in the parallel trend assumptions when comparing two segments of logistic curves, I wonder what is the main takeaway from a figure like 4.1 in the thesis: shall we interpret that in the causal sense typical of applied microeconometrics, or is that just indicative that the selection between “treated” and “control” groups is such that the former typically lie at a lower position in the logistic, and vice versa for the latter? Without inspecting the composition of

the two groups (and aside from the practice of dichotomizing a continuous explanatory variable around its mean): something that I could not effect from reading the thesis, one cannot say. In the professional practice of applied microeconomics, variations and extensions of linear models like OLS are cherished (or fetished) to the point that they are routinely employed even in settings that are known in advance to be non-linear, sometimes for a good reason, sometimes not. In this case I cannot find good reasons. I believe that the appropriate empirical model for addressing the research question of the thesis is one based upon an explicit model that takes into account the “epidemiological” dynamics of both the dependent and the independent variables of interest, and relates the two, so that one can learn how one affect the other over time. Or alternatively, if the author aimed at an approach closer in spirit to the typical practice of applied microeconomics, he should have incorporated any predictable non-linearities or dynamics in the regression equation: for example, by letting the past (lagged) level of the dependent variable appear on the right-hand side and possibly interacting with the key regressor of interest.

LITERATURE: The literature review is well redacted and fairly comprehensive, and it clearly focuses on the contributions about technological diffusion and learning from the recent practice of applied microeconomics, a particular research strand that has attracted considerable attention from development economists working with micro-data. Unsurprisingly, the research papers that the thesis cites the most are of that kind, and yet these papers feel somewhat loosely connected to an empirical analysis with uses survey and aggregate data at the country level. Perhaps it would have been worthwhile to cite more contributions about the “macro” of technological diffusion, in the tradition of the cited classic paper by Rothenberg (1974). Some bibliographical entries are incorrectly cited (e.g. “Valero and van Reenen” omits the “van”) but this is a minor issue.

MANUSCRIPT FORM: The manuscript is excellently structured and redacted, with a sequence of sections that follows the typical standards of professional research economics papers, and yet with a literature review section that is appropriate for a Master’s thesis. The thesis also displays a level of English that is more than adequate for the occasion. Some estimates could have been run so as to avoid many decimal figures (see e.g. Table 4.1) but this is clearly a minor issue.

SUMMARY AND SUGGESTED QUESTIONS FOR THE DISCUSSION DURING THE DEFENSE: This thesis represents a serious attempt at addressing at quantifying a phenomenon that common sense suggests has taken place worldwide following the COVID-19 pandemic: the increased take-up of ICT related to financial services. For the reasons I elaborated, I believe that the key research question is addressed with inappropriate methodologies. However, I also believe that the author shall be given the chance to motivate his choices, and a formal defense is the right occasion for that. The very first question I would personally ask on that occasion, were I part of the defense committee, is what motivates the choice of linear models in the particular context of this thesis. In addition, I would ask for more details about the actual composition of the “treated” and “control” group, and whether the DiD results are robust to slightest variations of the rule that determines them. If they are not robust, what do we learn about possible confounding factors? Is there any chance that the definition is affected by measurement error in the COVID-19 intensity, with countries that where hit hard by the pandemic, and low levels of testing/monitoring, being classified as “control”?

I recommend the thesis for defense.

TEXT ORIGINALITY CONTROL

I confirm that I acquainted myself with the report on the originality of the text of the thesis from

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SUMMARY OF POINTS AWARDED

CATEGORY	POINTS
Contribution	21
Methods	19
Literature	16
Manuscript Form	20
TOTAL POINTS	76
GRADE	C

NAME OF THE REFEREE: Paolo Zacchia

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REFEREE SIGNATURE