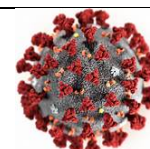


National COVID-19 Science Task Force (NCS-TF)



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Comment on planned updates : Brief will be updated when new estimates by KOF are available

Title: Contact Tracing Costs

Summary of request/problem

Executive summary: The economic costs of contact tracing (recruiting, training, and wages of tracers) are likely to be very small in comparison to the potential benefits of contract tracing (easing of lockdown, opening businesses)

Main text

When an individual tests positive for infection with SARS-CoV-2, it is possible that this person has already spread the infection to other people with whom he/she has been in close contact. Contact tracing seeks to rapidly identify these potentially infected people, so that they can be tested for infection and put in quarantine.

Contact tracing can be based on new smartphone apps, several of which are currently being used or planned in different countries. These apps identify phone users who were in close proximity to another user who tested positive for infection with SARS-CoV-2.

Another, more traditional approach to contact tracing is to ask infected persons about other individuals with whom they interacted recently, and then to find these individuals. This process can be facilitated by simple tools such as write-in lists in offices, stores, etc. where individuals indicate when they were present in a given location.

Contact tracing and testing/quarantine measures can help to slow the spread of the virus. The current lockdown measures serve the same public health purpose as well. Whether contact tracing is an attractive policy measure as compared to economic lockdown depends on the relative efficiency of these measures, i.e., whether they allow to limit the spread of the virus at a relatively low cost.

The Republic of Ireland (population 5m) announced plans to recruit 1,400 contact tracers in late March (The Guardian, 4/4/2020). The U.S. state of Massachusetts (population 7m) has set aside a budget of \$44m to hire 1,000 contact tracers (The New York Times, 16/4/2020).

If we assume that Switzerland (population 8.6m) hires 2,000 additional contact tracers, and if we assume that these individuals are paid at the Swiss median gross salary of CHF 6,538 per month (Swiss Labor Structure Survey 2018), then their total monthly wage bill, inclusive of 15% employer contributions to social security and pension plans will amount to CHF 15m. Suppose the recruiting, training and purchase of equipment creates a one-

time cost of CHF 10,000 per tracer, and that each tracer has monthly communication costs of CHF 1,000. Under these assumptions, the 2,000 tracers will have a total recruiting, training, equipment and salary cost of approximately CHF 20m per month, averaged over a six-month period.

If the contact tracers are recruited out of the rising pool of unemployed individuals in Switzerland, then the effective net cost for public institutions will be even lower since these individuals will no longer require unemployment benefits.

How do these costs of contact tracers compare to the costs of the economic lockdown itself (while controlling for other costs like the negative international environment in which firms now operate)? KOF, ETH Zurich (24 April 2020) estimates that the total loss in value added during the 6 weeks of the lockdown has been approximately 18 billion CHF. Approximately a third of this, i.e. 6 billion CHF, is directly attributable to the lockdown measures themselves. Hence, the monthly cost of a lockdown are approximately 4 billion CHF.¹

Based on the simple computation above, the monthly cost of 2,000 contact tracers thus amounts to about 0.5 percent of the monthly lockdown cost. Of course, it seems plausible that the lockdown has not only a higher cost, but also a higher public health benefit in terms of reducing the spread of SARS-CoV-2. But unless the lockdown reduces the spread of the virus 200 times more than the work of contact tracers, the recruiting of 2,000 contact tracers provides an (extremely) cost-effective measure to combat SARS-CoV-2.

Unresolved issues

References

- New York Times article on contact tracing in Massachusetts:
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<https://www.theguardian.com/world/2020/apr/04/recruit-volunteer-army-to-trace-coronavirus-contacts-now-urge-top-scientists>
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- KOF Analysis lockdown (press notice): <https://kof.ethz.ch/news-und-veranstaltungen/medien/medienmitteilungen/2020/04/coronavirus-kostet-die-schweizer-volkswirtschaft-bis-zu-36-milliarden-franken.html>
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¹ Note that this KOF estimate takes the negative international development as given (i.e. not affected by Swiss policy), that even without the lockdown, approximately 1.75% of all workers would not be able to work because of illness, and, per infected person, 5 additional persons are in quarantine because of having been in contact with someone infected.