

*WHAT ARE THE ROLES
PLAYED BY NUDGES AND/OR
INCENTIVES IN GETTING RAG
PICKERS VACCINATED?*

Sanjana Runwal

The Clean Up Foundation

Abstract

Though it is necessary to get vaccinated to reduce the risk of covid-19 infection, people are reluctant in taking the vaccine. There are several reasons that restrict people from getting vaccinated and therefore this experiment- based research was conducted by Clean Up Foundation to analyse the impact of nudges and/ or incentives provided to rag pickers on them getting vaccinated. The sample of 200 ragpickers were divided into four groups, the first group without any informational nudge or incentive, the second group with only a nudge, the third group with incentives and the fourth group with a nudge as well as a financial incentive. From the experiment, it was observed that 80 percent of rag pickers in the fourth group (a nudge and incentive) took the vaccine. Therefore, the government needs to execute necessary policies in providing informational nudges and financial incentives to rag pickers to increase the number of people getting vaccinated, thus reducing the rate of covid-19 infections.

Key words: nudges, incentives, vaccination, rag pickers.

Introduction

With the rapid vaccination around the globe, the major concern today is the inoculation of majority of the population against covid-19. In developing countries like India, only 11% of the eligible population is fully vaccinated with two doses.¹ A supply shortage of the available quantity of vaccines is a big problem, however, it is not the only concern, there are several other obstacles in getting citizens vaccinated: vaccine manufacturing, distribution, deployment, and ultimately lack of knowledge and acceptability. This was observed during the survey conducted by Clean Up foundation.

The Clean Up foundation, established in 2016 with the aim to improve the quality of lives of rag pickers, conducted a survey to understand the reasons behind the unwillingness of rag pickers in getting vaccinated. After analysing the responses of 50 rag pickers, it was discovered that they lacked adequate knowledge about vaccinations and the process for getting vaccinated. They were unaware of the benefits of vaccination. Also, many of them responded that they are afraid of vaccinations because of the risk of adverse effects. This implies that lack of information often results in lack of trust. Therefore, trust in the vaccinations is important and is vitally reliant on the capacity of governments to explain the advantages of vaccination, and to provide the vaccines safely and effectively.

¹ Source: ("India vaccination: Does it have enough doses for all adults?", 2021)

The loss of daily wage is another significant reason why rag pickers do not get vaccinated. Rag pickers are not government employees; they work in the informal sector, and their primary source of income is the daily wage they receive from collecting waste. Vaccination is a time-consuming procedure, and if rag pickers wait in a lengthy queue to get vaccinated, they must forego their earnings. Thus, in addition to asymmetric information about vaccinations, ragpickers are hesitant from getting vaccinated as they do not want to bear the opportunity cost of their daily wage.

Therefore, this research aims at examining the role of informational nudges and/or financial incentives in getting rag pickers vaccinated. Rag pickers are significant economic players who contribute to long-term economic growth and development by providing enormous amounts of valuable materials for recycling that would otherwise go unused. Waste workers also help to safeguard the environment by making items available for reuse or reprocessing, allowing precious resources to be recycled globally. But they are continually exposed to toxic chemicals, unintentional dangers, and other hazards at every step of the waste management process, from collection through recycling and disposal. This has a bigger impact on their health. Thus, it is necessary to maintain health conditions of rag pickers and them to get vaccinated. This necessitates the need for conducting the research to examine the number of rag pickers getting vaccinated and to examine the reasons if rag pickers are not getting vaccinated.

Immunization of rag pickers will also have positive impact on their health improving their work efficiency. Improvements in health conditions of rag pickers will impact the efficiency of municipal waste management. Thus, immunization of rag pickers will ultimately help in improving efficiency in waste management. These positive consumption externalities involved in inoculation of rag pickers against covid 19 should be taken into consideration while conducting vaccination drive for lower income groups. However, the number of people from lower income group getting vaccinated have found to be low in India. (Only 7.24 percent of the total population is fully vaccinated).² This can be a result of asymmetric information. In developing countries like India, majority of citizens are usually unaware of the effects of medical treatments or vaccines available for immunization. This asymmetric information discourages people from getting vaccinated. Thus, it has been observed in developing countries across the world that providing adequate information is necessary. In Serbia, when demand for

² Source: (Ritchie et al., 2021) Coronavirus Pandemic (COVID-19).

vaccination was falling, the president Aleksandar Vučić announced that the government would pay cash to citizens to get vaccinated against Covid-19. This led to immunization of 1.3 million people in Serbia. ³ The non-governmental organisation (NGO) in Nigeria had conducted informational drives to convince people for getting vaccinated. This initiative showed rise in number of people getting vaccinated in Bayelsa state of Nigeria.⁴ These initiatives in developing countries like Nigeria, Serbia indicate how informational nudges can be useful in improving immunization drives. These studies reveal that the nudges are important in getting people vaccinated. Nudges, as propounded by Richard Thaler, are *“any aspect of the choice architecture that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates.”* This simply implies that the government is a choice architect who can frame alternatives available in providing nudges to people for getting vaccinated, they can be informational campaigns or informative advertisements on television. As mentioned in the definition, nudges are not mandatory and therefore providing adequate information about vaccines counts as a nudge while strict laws like getting punished if not taken the vaccines does not. It has also been observed in psychological experiments that informational nudges or rewards work better than punishments.⁵ Therefore, Clean Up Foundation used informational nudge by providing adequate information about vaccines to one group of rag pickers.

Research Questions:

- How does nudges and/or economic incentives affect the number of rag pickers getting vaccinated?
- Are nudges enough or are economic incentives also needed to get rag pickers vaccinated?

Research Objectives:

- To examine the impact of nudges or incentives in getting rag pickers vaccinated.
- To investigate what feasible measures can be taken to increase the number of ragpickers getting covid-19 vaccines.

³ Source: ("Explained: What are the Covid-19 vaccine incentives being adopted around the world?", 2021)

⁴ Source: ("From town criers to local monarchs: encouraging COVID-19 vaccination in Southern Nigeria", 2021)

⁵ See: ("What Motivates Employees More: Rewards or Punishments?", 2021)

Hypothesis:

H₀: There is no significant impact of nudges or incentive on number of rag pickers getting vaccinated.

H₁: There is a significant impact of nudges and/or incentives on number rag pickers getting vaccinated.

Methodology

The research is based on primary data collected by clean up foundation through non-probability sampling technique, that is, convenient sampling method. Participants were mainly from H west ward in Bandra. Participants who had not registered for vaccination but were eligible to receive vaccine under government-specified criteria were selected, and the experiment was carried out with their informed consent. The independent measure design ⁶ is used in conducting an experiment so that random allocation of participants in the groups can be made. 200 rag pickers were divided into four groups having 50 members each and rag pickers were randomly put into one of these four groups. Among four groups, first group was not provided with any kind of incentives or nudges, second group was given nudges (prior information about benefits and aftereffects of vaccines), third group was assured by the clean-up foundation to get financial incentives on showing the vaccination certificate and the fourth group was given both nudges along with incentives. Fourth group was given financial incentives equal to the financial incentives given to third group. Financial incentives were equal to the daily wage earned by rag pickers. In Mumbai, the daily wage of rag pickers varies from Rs. 50 to Rs. 250 per day. ⁷Thus, amount ranging from Rs. 50 to Rs. 250 was given by Clean Up foundation as a financial incentive for rag pickers to get vaccinated. Financial incentives were financed through various activities conducted by Clean Up foundation to raise fund for well-being of rag pickers in Mumbai.

The experiment conducted by Clean Up foundation considers three types of variables in the given experiment. The dependent variable is the proportion of rag pickers getting vaccinated and the independent variable is behavioural nudge and/or financial incentive

⁶ Independent measures design, also known as between-groups, is an experimental design where different participants are used in each condition of the independent variable. This means that each condition of the experiment includes a different group of participants. This should be done by random allocation, which ensures that each participant has an equal chance of being assigned to one group or the other. See: (McLeod, 2021). Experimental Design.

⁷ Source: ("Ragpickers suffer in silence for Rs 50 a day in Mumbai", 2021)

provided to garbage workers after showing proof of vaccination (which is roughly around their daily wage). However, there can be several reasons behind rag pickers getting vaccinated such as fear of getting infected due to virus causing death or peer influence (a person getting vaccinated because his neighbour got vaccinated). Such reasons are variables are called extraneous/ confounding variables, the effect of which reduces the strength of the causation inference.

The observations recorded from experiment were analysed using One way ANOVA (Analysis of Variance) which can be employed in analysing the variation in mean values of three groups. Variation in responses given by three groups of rag pickers was interpreted using p-value and F-statistic. Based on the observations from the experiment and interpretations of the statistical values, the impact of nudges and incentives on number of rag pickers getting vaccinated was evaluated. Recommendations were, then provided, on how to get majority of rag pickers vaccinated.

Data Analysis:

ANOVA: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
No nudges or incentives	50	10	0.2	0.163265
Nudges	50	23	0.46	0.253469
Incentives	50	30	0.6	0.244898
Nudges as well as Incentives	50	43	0.86	0.122857

ANOVA

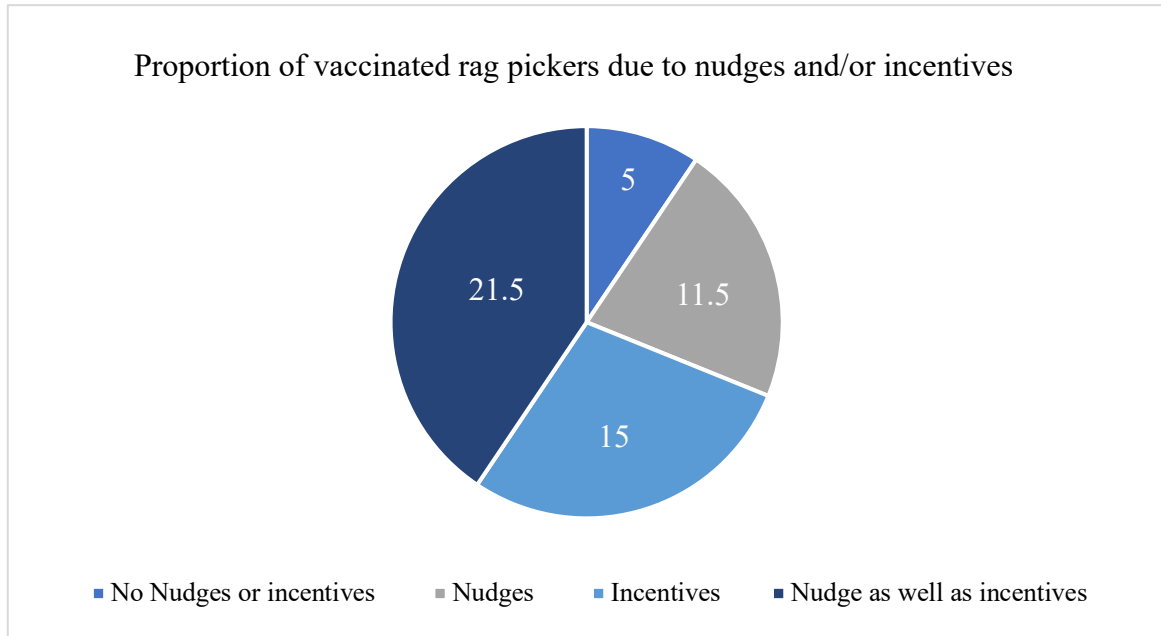
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	11.38	3	3.793333	19.34166	5.01E-11	2.650677
Within Groups	38.44	196	0.196122			
Total	49.82	199				

Source: Primary research conducted by Clean Up Foundation, 2021.

Since the F-statistic (19.34) > F-critical (2.65) and p-value is 5.01E-11 (< 0.05), the null hypothesis should be rejected. This implies that there is a significant impact of nudges and/or incentives on the number of garbage workers getting vaccinated. This, in turn, implies that there is significant relationship between dependent and independent variables while assuming that the outcome is not affected by extraneous variables. This association between

two variables viz. behavioural nudges and proportion of garbage workers getting vaccinated should be considered by government for successful execution of policies regarding vaccination.

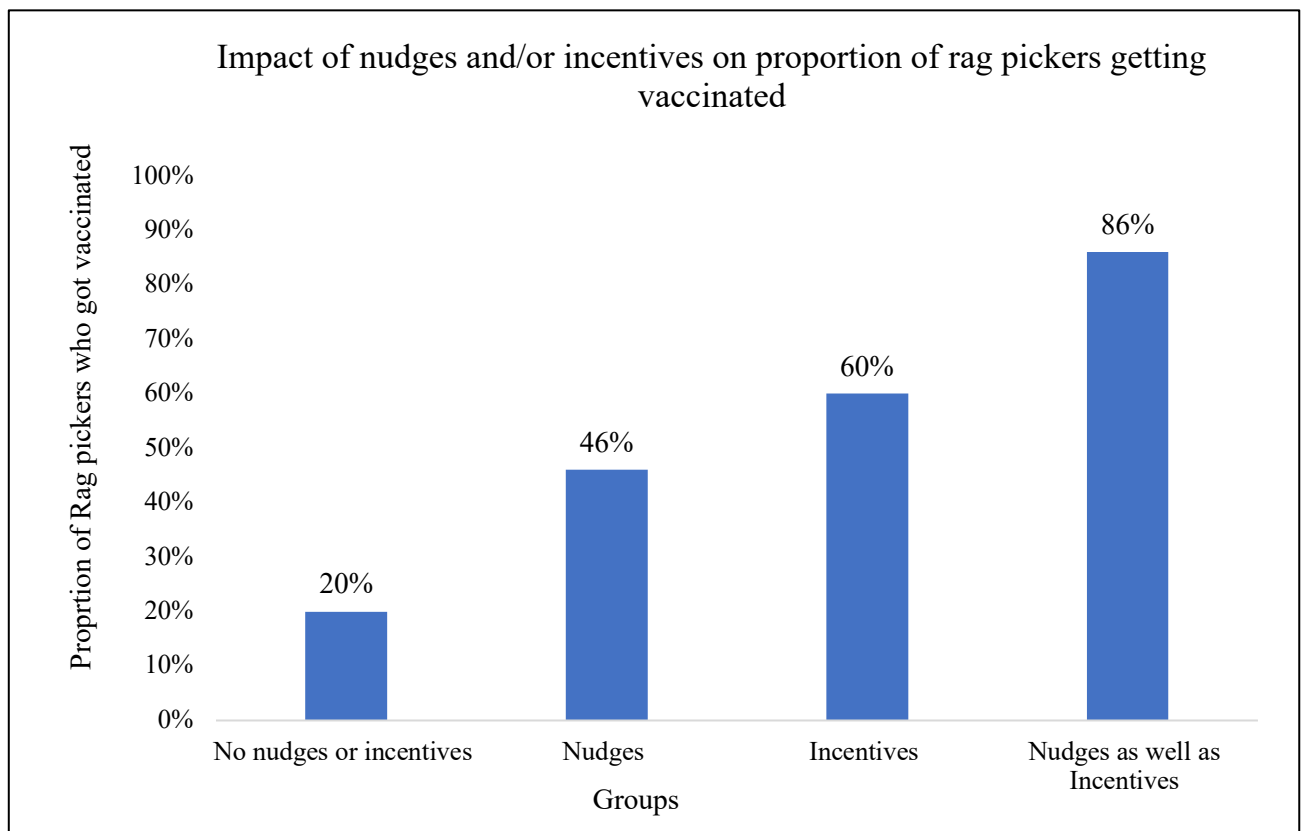
Fig 1: Proportion of vaccinated rag pickers due to nudges and/or incentives



Source: Primary Data Collected by Clean Up Foundation.

Fig. 1 depicts that from the total sample 200 rag pickers, 5 % got vaccinated when there was no incentives or nudges provided, 11.5 % got vaccinated when only nudges were given, 15 % got vaccinated when only incentives were provided, 21.5 % got vaccinated when both, nudges as well as incentives were given. This implies that the proportion of rag pickers getting vaccinated increases with the provision of nudges and/ or incentives.

Fig 2: Impact of nudges and/or incentives on proportion of rag pickers getting vaccinated



Source: Primary Data Collected by Clean Up Foundation.

From fig 1, it can be observed that only 20 percent of garbage workers got vaccinated when there were no nudges or incentives. The second group was provided with adequate information about vaccination (informational nudge), and it was found that 46 percent of the sample in second group got vaccinated. The third group was given financial incentives on showing vaccination certificate. This resulted into a rise in the number of garbage workers getting vaccinated. 60 percent of the sample got vaccinated when incentives are provided. However, providing informational nudges along with financial incentives improved the number of rag pickers getting vaccinated significantly (86 percent of the total sample). This implies that the nudges like providing information or financial would be helpful in increasing the number of people getting vaccinated. However, only nudges or only incentives would not be sufficient, incentives along with nudges would contribute significantly to increasing the number of vaccinated people.

Discussions

From the data analysis, it can be observed that nudges and incentives resulted in increased participation of rag pickers in vaccination drive. Only 20 percent of participants in group 1 got vaccinated as opposed to 86 percent of total participants in group 4. This huge difference in proportion of rag pickers getting vaccinated is the result of adequate information and financial incentives provided by Clean Up foundation to rag pickers. It had been observed in the previous studies conducted across the world that financial incentives as well as informational nudges worked well in promoting vaccination drives. However, the Clean Up Foundation's experiment demonstrated that nudges or incentives alone are insufficient; a combination of the two showed the most significant increase in getting most of the sample vaccinated.

This research has high reliability since the sample is large (200 garbage workers). However, because the sample is confined to just rag pickers in Mumbai, especially those who work in the H West Ward in Bandra, and who were chosen by convenient sampling method, this study has a few drawbacks like the findings lack generalizability to the wider population. Another limitation, which reduces the credibility of the study, is the behavioural bias involved in the experiment. This experiment involves demand characteristics⁸ since rag pickers were given prior information at the start of the experiment while debriefing to get their consent.

Despite these drawbacks, the research is valuable since the results indicated the effectiveness of incentives as well as nudges. Nudges as observed are cost-effective provisions in getting rag-pickers vaccinated. This has been observed in the recent study conducted in West Bengal, India. The researchers sent 2.5-minute video clips to 25 million people in the State, and it was observed that the video clips increased the reporting of health symptoms to community health professionals and decreased travel outside of one's town⁹. Thus, through nudges the spread of virus could be curbed. Similar strategies can be used in providing vaccines to rag pickers in Mumbai. Informational nudges to promote vaccination through advertisements or SMS can help in improving inoculation of rag pickers against Covid 19. However, it is difficult to measure the effects of nudges in vaccination as they are not directly measurable as other factors may play a role in influencing rag pickers' behaviour towards vaccination. For

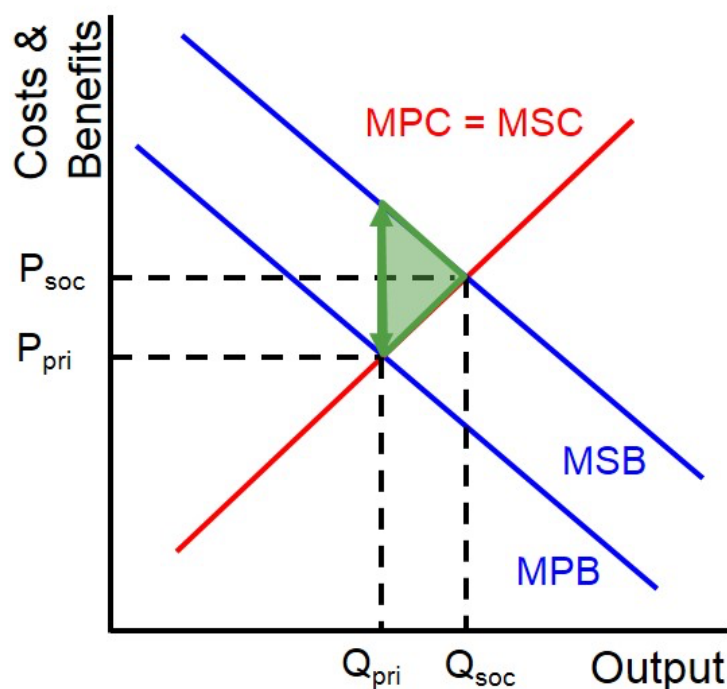
⁸ In a psychological experiment, a demand characteristic is a subtle cue that makes participants aware of what the experimenter expects to find or how participants are expected to behave. Demand characteristics can change the outcome of an experiment because participants will often alter their behaviour to conform to expectations. See: ("How Demand Characteristics Alter the Results of Psychology Experiments", 2021)

⁹ Source: ("How information campaigns can improve vaccine acceptance | IDR", 2021)

instance, rise in number of rag pickers getting vaccinated can be a result of peer pressure, that is, influence of other people getting vaccinated around them. However, informational nudges can influence rag pickers to be vaccinated by instilling faith in them regarding vaccinations and their advantages.

In contrast to nudges, government incurs expenses in incentivizing vaccination campaigns since vaccine is a merit good¹⁰. The following diagram depicts the market for a merit good- Vaccination against Covid 19.

Fig 1: A Market for a Merit Good – Vaccination.



Source: ("Education Resources for Teachers, Schools & Students | EZY education" 2021).

In the above diagram, the dead weight loss triangle (green area), which evaluates the external benefit that the market has not utilised due to under consumption, highlights the degree of market failure in this sector. Therefore, government intervention is needed. The government needs to implement an expansionary fiscal policy that includes increased government expenditure on social causes such as providing financial incentives to rag pickers. These can lead to the widening of the budget deficit. However, financial incentives to rag pickers have

¹⁰ A merit good is a good which when consumed provides external benefits, although these may not be fully recognised – hence the good is under-consumed. Examples include education and healthcare. Therefore, government intervention is needed to provide such goods. See: ("Merit good - definition | Economics Online | Economics Online", 2021)

benefits such as avoiding loss of daily wage of rag pickers and their enhanced inoculation against Covid 19. This will boost their immunity and avoid reduction in efficiency in waste collection. For example, if rag pickers get affected due to the virus, their bad health conditions will reduce efficiency in waste collection. This will have adverse impact on health of other people in the city. Thus, improved proportion of vaccinated rag pickers will improve overall health of the city which contributes to combat the pandemic. Considering these positive consumption externalities ¹¹involved in immunization of rag pickers, the government should take appropriate measures to promote vaccination drives with the help of incentives and nudges along with easing the procedure of vaccination.

Briefly, inoculation of rag pickers against Covid 19 involves social benefits of improving overall health of the city. Therefore, Clean Up Foundation conducted experiment to investigate reasons for rag pickers' reluctance to be vaccinated and it was found that few of the major reasons restricting rag pickers from getting vaccinated are the loss of wage, that is, the opportunity cost involved in getting vaccinated and lack of awareness about benefits of vaccines. Hence, government intervention is needed in developing trust about vaccines among rag pickers. Also, as observed in the research, nudges and incentives have direct relationship with the proportion of rag pickers getting vaccinated. This significant association between nudges and/or incentives and the proportion of rag pickers getting vaccinated should be taken into consideration while framing policies aimed at improving immunization of citizens against Covid 19. To improve immunization, the government should conduct informational campaigns to promote awareness about vaccines among rag pickers considering the positive impact of informational nudges on number of rag pickers getting vaccinated. Government can also provide financial incentives to rag pickers considering the opportunity cost involved in getting vaccinated.

¹¹ Positive consumption externality occurs when consuming a good cause a positive spillover to a third party lying outside the transaction. See: ("Positive Consumption Externalities | tutor2u", 2021)

Bibliography

Explained: What are the Covid-19 vaccine incentives being adopted around the world? (2021). Retrieved 27 July 2021, from <https://indianexpress.com/article/explained/explained-what-are-the-different-kinds-of-covid-vaccine-incentives-being-adopted-around-the-world-7338308/>

How Demand Characteristics Alter the Results of Psychology Experiments. (2021). Retrieved 4 August 2021, from <https://www.verywellmind.com/what-is-a-demand-characteristic-2795098>

How information campaigns can improve vaccine acceptance | IDR. (2021). Retrieved 5 August 2021, from <https://idronline.org/how-information-campaigns-can-promote-vaccination-covid19/>

McLeod, S. (2021). Experimental Design | Simply Psychology. Retrieved 26 July 2021, from <https://www.simplypsychology.org/experimental-designs.html>

Merit good - definition | Economics Online | Economics Online. (2021). Retrieved 5 August 2021, from https://www.economicsonline.co.uk/Definitions/Merit_good.html

Positive Consumption Externalities | tutor2u. (2021). Retrieved 5 August 2021, from <https://www.tutor2u.net/economics/reference/positive-consumption-externalities-1>

Ritchie, H., Ortiz-Ospina, E., Beltekian, D., Mathieu, E., Hasell, J., & Macdonald, B. et al. (2021). Coronavirus Pandemic (COVID-19). Retrieved 31 July 2021, from <https://ourworldindata.org/covid-vaccinations>

Ragpickers suffer in silence for Rs 50 a day in Mumbai. (2021). Retrieved 9 August 2021, from <https://www.hindustantimes.com/mumbai/ragpickers-suffer-in-silence-for-rs-50-a-day-in-mumbai/story-6e2quFLoB2tJpJU5b3pHbP.html>