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Jason R. Utz

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Jason Utz, M.S. Social and Applied Economics

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Professor Zdravka Todorova

Department of Economics, Wright State University

Planting the Future: A Green Jobs Remediation for the Greater Dayton Area

Introduction

Situated in southwest Ohio, Dayton has been a vibrant hub of manufacturing for much of its past. As a host for the corporate headquarters of the National Cash Register (NCR) company and Premier Health Network, a major production facility for General Motors (GM), and Wright Patterson Air Force Base (WPAFB), Dayton has been a hotbed of opportunity. But now, with the departure of NCR and GM, Dayton has faced many of the same problems as other semi major cities scattered throughout the Midwest in what is now termed the “rust belt”. Although the city has a modest February unemployment of 4.3% this will certainly be hit hard by the novel coronavirus caused economic shutdown (bls.gov). 146.1 thousand people, or 37% of the city’s employment rests in manufacturing, transportation, and hospitality services, all very hard-hit industries (bls.gov). For this reason, it is imperative that Dayton be a test case for the economic, ecological, and social feasibility of a green jobs guarantee program.

This type of program could serve as an example for ways to implement it eventually across the country. The goals of a green jobs guarantee program are simple, to alleviate

unemployment and its auxiliary pains while simultaneously remediating environmental problems that cost taxpayers indirectly (Forstater, 2006). This proposal will outline the benefits of such a program through the lens of economic, social, and environmental sustainability outlined by Martin Mulligan. This framework introspects economic processes to break their costs, benefits, institutions, and regulations into the three categories of sustainability (Mulligan, 2018). In particular, this proposal will institute an urban planting and forestry project to boost unemployment and to remedy air pollution issues affecting the Greater Dayton area. Currently, Dayton carries the highest 5-year average in Ohio of air pollutant PM_{2.5} and is tied with near neighbor Cincinnati at the highest levels of Ozone (O₃) pollution (epa.gov). This program is targeted to remediating this problem that indirectly costs area residents with increased health risks that will be analyzed throughout this proposal.

Unemployment

Unemployment severely impacts the first 2 spheres of economic and social sustainability. Economist Hyman Minsky remarked that one of the most counterproductive sacrifices made in the modern world is trading off unemployment for anti-inflation (Wray, 2017). This idea of targeting a non-accelerating inflation rate of unemployment (NAIRU) puts the basic needs and survival of those at the bottom against the risk of inflation. Dayton could be a test case for proving this both inaccurate and unnecessary. A green jobs guarantee program would provide employment for all workers who seek to work in the labor market at a livable wage. This would be attractive for unemployed workers, disenfranchised people who have given up on work, and those that are paid below a livable wage. Former papers from the Levy Institute have suggested setting this wage at \$15 plus benefits to accommodate a living wage across the United States

(Tcherneva, 2018). While this could be used as a baseline, housing and living affordability in the greater Dayton area would allow this number to be smaller to meet fiscal restraints of the program.

Direct economic impacts of solving unemployment span across multiple sectors. It allows an effective minimum wage floor, as private businesses operating with at or around minimum wage labor would need to compete. This drives up wages from the bottom, easing inequality and hopefully fueling consumer spending from the income class most likely to spend on staples (Wray, 2017). With an increase in labor earning working experience, this program may serve to attract further industry to the Dayton area knowing there is a trained labor force to recruit from. Landscaping, city planning services, and environmental firms may especially be interested with a crop of people with intimate experience in their field available to recruit.

The indirect economic and social costs of unemployment could be much greater than direct costs. Psychological effects of being unemployed, failing to meet institutional expectations especially for prime age males, greatly diminish wellbeing. This can lead to lower life happiness, lack of optimism, and even economic despair leading to an increase in suicides (Huikari and Korhonen, 2016). Distress of economic situation can spill over for those working below a livable wage as well. These individuals may experience lack of motivation which decreases productivity. Benefits of lowering inequality may have residual effects among the workers in the program. Maintaining a decent paying job lowers crime and recidivism rates, which lowers public spending on jails, decreases healthcare expenditures with more insured and healthier patients, and increasing community activism on other projects that matter (Tcherneva, 2018). All of these will hopefully create a positive feedback loop strengthening community institutions and improving quality of life for residents.

Environment

While fluid to adapt to other areas of needed influence, the functional aspect of this proposal centers around urban planting to remediate air quality concerns. To be a feasible jobs guarantee program, the positions would need to be easily learned to be able to be done by those of all skill levels and abilities. While there will be others that pop up as a plan is more firmly developed, this proposal sees the following as major labor needs: surveyors to take area measurements, planters for trees and urban gardens, city planners and arborists to develop plans for where and what to plant, meter readers to measure and observe air quality readers, and cultivators to fertilize and take care of already planted trees and gardens. Of these positions, only the city planners and arborists require advanced training beyond that of the casual applicant to the program. Among the rest, only the planters require modest physical requirements to stand, kneel, and be able to dig holes to plant the trees. Dayton contains a vast area that can be used to implement this policy. From natural spaces contained in the Five Rivers Metroparks system, City of Dayton owned golf courses (Kittyhawk, Madden, and Community Golf Courses), and Federal, State, and Municipally owned properties, area is available to plant. Additional buy-in may be needed from voluntary metropolitan building owners with rooftops available to create urban gardens.

Urban gardens and arboretum projects have several notable and significant benefits. On a macro scale, this would create a carbon sequestration bank forming a piece of the puzzle to adhere to Kyoto Protocol goals (Mulligan, 2018). On the city level, the goal of this program would be to improve ambient air quality to the highest possible degree to benefit the citizens within. The first form of particulate pollution sought to be remediated is PM_{2.5}, which is particulate matter under 2.5 microns in diameter, which can be damaging to human lungs when

inhaled in high concentrations (Sicard et al., 2018 & Beckett et al., 1998). The other form of air pollution being targeted is tropospheric ozone (O₃), which is damaging to human health as well as natural vegetation and yield crops (Sicard et al., 2018). While these targets are meant to be geared towards ecological sustainability, they also have numerous benefits within the economic and social sectors of analysis.

Urban forests can and have played a significant role in reducing PM_{2.5} pollution in communities worldwide. A case study from the United Kingdom revealed that urban forests and vegetation can effectively act as a particulate sink, and while the concentration of particulate matter may be damaging to human health it only minimally effects the health of trees and plants (Beckett et al., 1998). PM_{2.5} in high concentrations has been shown to be harmful to development in newborns and to those with asthmatic conditions (Beckett et al., 1998). Although indirectly linked, this causally contributes to higher expenditures in healthcare for families, especially those including these vulnerable populations. Similarly, ozone pollutant levels have been increasing worldwide, although green urban infrastructure has the potential to abate this rise (Sicard et al., 2018). To estimate the potential economic benefits to this reduction in ozone, the EPA offers a free mapping software called BENMAP-CE. This program can provide economic impact analysis that can be used not only as support for legislation in adopting these policies, but also to weigh costs and benefits of various proposal options and levels of effort (Carvour et al., 2018). Although this may not be an all-inclusive number, it lays out a quantifiable baseline to legislators, taxpayers, and industry to amplify stakeholder buy-in. Ozone is damaging to more than just humans. With a close relation to sulfur and nitrous oxide emissions, this cocktail of pollutants can lower crop yields and harm vegetation. With ample farmland surrounding the

Dayton area in all directions, this could be a very hard to estimate economic benefit to constituents outside the metropolitan area.

Social effects of urban gardens and forestry may not be readily quantifiable, but their impact in furthering societal institutions remain vital benefits. The intention of this program would be to educate residents on sustainable processes, hopefully encouraging private individuals to act likewise in creating partnerships aimed at bettering the Greater Dayton area. Residents may also welcome these projects as aesthetically pleasing and a reason to be out and active in the community.

Conclusion and Implementation

This project has the potential to remedy two significant problems facing the Dayton community. Unemployment and air quality degradation both serve as a source of widespread social, ecological, and economic problems across the region. For the reasons listed in this proposal, it is necessary to take action such as a greens jobs guarantee program to progress the economy into a more equitable and robust future. This program will leverage a plethora of opportunities to employ laborers at all points on the spectrums of age, experience, education, and ability. Original plans of laying out a job guarantee program focus on a national program that can utilize federal government ability to take on national debt (Tcherneva, 2018 & Wray, 2017). Federal funding only solves a portion of the administrative problem, however. State and municipal agencies must be overhauled to be able to coordinate operational aspects of hiring, placing, and caring for a job guarantee labor force. Additionally, the city must create management synergies to connect this labor force with project sites and roles in the Miami

Valley. Regardless of programmatic operational design, the overall program must be marketed in a way that is politically appealing to taxpayers and residents, industry, and legislators as they are the key stakeholders in the implementation of this proposal.

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