Policy Analysis
Regional Economic Development
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1. Executive Summary:

This paper is an analysis of one major local economic development policy in New York City. NYCEDC (New York City Economic Development Corporation) recently is implementing a program “UrbanTech NYC” to support entrepreneurs and innovators to help them find solutions for challenging problems in sectors of energy, transportation, water, waste, and agriculture in the city. UrbanTech NYC provides shared spaces and resources, equipment, pilot opportunities, prototyping, and learning opportunities to let these entrepreneurs and innovators being innovative in smart technologies. They provide two hubs, one in Manhattan, and one in Brooklyn with over 100,000 square feet of affordable and flexible space along with prototyping and piloting equipment.

The paper also identifies three other policy options that New York City can adopt and implement instead of the current policy option. They briefly include maintaining the status quo, providing tax incentives to big established well-known companies, and investing in implementation and provisions of smart infrastructure to attract entrepreneurs and firms to create a smart industry cluster in the city. Each of these policy options have positive and negative aspects that will be discussed in details through the paper. In addition, this paper provides an evaluation of the current policy option accompanying by alternative policy options.

The paper will be concluded that the preferred policy is the current policy. The current policy, “UrbanTech NYC”, is a novel platform for new entrepreneurs and innovators that aligns with other simultaneous policies and programs in New York that together they can be successful in their goals. Since these new policies try to deal with newly identified problems in the city with novel solutions and perspective, they are actively involved in knowledge spillover and information, reducing regulatory burdens on entrepreneurs, so they are worth trying.

2. Introduction and statement of issue:

Summary of the policy:

UrbanTech NYC: As part of the plan of New York City to support smart cities and cleantech companies, New York City Economic Development Corporation (NYCEDC) launches an economic development program called Urbantech NYC. It provides shared resources such as space and equipment to new entrepreneurs that are specialized in challenging urban issues. These specializations include energy, waste, transportation, food, water, and the built environment.

They also provide “access to prototyping and testing equipment, local training programs, sector specific business workshops, mentorship, and support.” (Urbantechnyc.com). In addition, UrbanTech NYC with partnership with the Mayor’s Office of Technology and Innovation provides opportunities for companies and entrepreneurs to pilot and demonstrate their innovative technologies across the city. UrbanTech NYC can support 3200 jobs in the next 10 years to make NYC a global hub in sustainable urban innovation. This UrbanTech NYC program compliments NYCEDC’s wider strategy of Applied Sciences NYC to attract and retain the most talented and engineering discipline (STEM) in NYC. This strategy ensures to foster the next most innovative ideas to be emerged in NYC.

This is a self-improvement policy that city wants to build economic growth within NYC to support incubators, entrepreneurs, and small businesses, and retain innovative, qualified, talented individuals in NYC to expand smart city and cleantech innovations for a smarter, resilient, sustainable NYC. They provide assistance to individuals by providing affordable spaces and shared resources to new fast growing entrepreneurs. By providing shared space, they also make these small entrepreneurs to be more competitive and the occurrence of knowledge spillover would be more often.

The imminent problem in NYC as is identified by the NYCEDC and the Mayor’s Office is climate change which is the reason the city committed to an 80 percent reduction in greenhouse gas emission by 2050. This is a challenging issue in city and it involves

energy sector, transportation, and pollution. So, this program will provide a platform, resource, and infrastructure that entrepreneurs need to foster sustainability and resiliency in NYC to deal with this issue.

3. Assemble evidence:

Since NYC deals with challenging urban issues in sectors of waste, energy, transportation, agriculture, and water, NYCEDC launches this new policy and program. One of the main challenges that the city of New York recognizes and mayor De Blasio refers to, is the climate change. Since then, the city looks for new strategies to find solutions to cope with this problem. The city committed to reduce 80 percent greenhouse gas emissions by 2050. Additionally, the broader goal of the city is to make the city more equitable and provide economic growth for all New Yorkers, and also make the city more sustainable and resilient. These are the reasons that NYC government decides to provide space and resources to brightest minds and talented visionaries in the city to help them grow and innovate to meet these goals. By finding innovative ideas city can deal with its challenging problems and have economic development. In this regard and by these goals the city launches Urbantech NYC to support innovation by cleantech and smart cities entrepreneurs and start-ups in the city.

Parameters:

In partnership with New Lab and Grand Central Tech, NYCEDC has committed up to \$7.2 million to create two Urban Technology Growth Hubs in Brooklyn and Manhattan, which opened in the summer of 2016. The Hubs activate approximately 100,000 square feet of flexible and affordable space, as well as provide dedicated resources for fast-growing cleantech and smart cities companies that have outgrown business incubators, accelerators, and other early-stage programs.

As a network of programs, Urbantech NYC access to prototyping and testing equipment, local training programs, sector specific business workshops, mentorship, and support. Additionally, Urbantech NYC partners with the Mayor's Office of Technology and

Innovation to provide opportunities for companies to pilot and demonstrate their innovative technologies easier across the city.

The New York State Regional Economic Development Council has also awarded NYCEDC \$750,000 in funding to build a Smart Cities Innovation Center in the Brooklyn Navy Yard, further expanding the resources available to growing companies seeking to commercialize innovative solutions to urban challenges. Urbantech NYC could support up to 3,200 jobs over the next ten years, further establishing New York City as a global leader in sustainable urban innovation.

The current program as stated in the website of NYCEDC provides the following resources:

- Over 100,000 square feet of affordable and flexible **co-working and private office space** for companies across all stages of the growth cycle
- Co-located **prototyping and testing equipment** for rapid on-site product development
- **Tenant support services**, such as business skills workshops, mentorship programs, and organized “demo days”
- Targeted, **sector-specific events** that will strengthen the cleantech and smart city communities in NYC
- **Workforce development programs** that will train the local workforce and create a talent pipeline for member companies
- Access to a **top-tier network** of academic institutions, investors, corporate partners, and city agencies
- The State Regional Economic Development Council has recently awarded NYCEDC with a grant to build a **Smart Cities Innovation Center**, which will help companies commercialize innovative solutions to urban challenges alongside public, private, and academic leaders.

Expected outcomes:

Urbantech NYC builds upon Mayor de Blasio's One NYC vision with this goal to make the city more sustainable and resilient while promoting equity and economic growth for all New Yorkers. As part of the Mayor's plan, the goal is that these hubs will support activities to make city and its infrastructure more efficient and reduce New York City greenhouse gas emissions 80 percent by 2050. Also, another goal is to keep the innovative talented people in New York City and support and help them to innovate for new wave of ideas about smart city and cleantech ideas, and through these goals they can achieve economic development in the city.

In this vein, the city also launches other policies and program to support sustainable, resilient, and equitable New York. Other policies are in different scales. In neighborhood scale, for instance, the city operates a program, "The Lower Manhattan Smart Neighborhood pilot" to improve air quality, enhance the resiliency of the city, reduce pedestrian deaths, optimize livability and urban development by monitoring air quality, sunlight, and noise pollution, and optimizing traffic flow.

In another program, "Smart Grid at the Brooklyn Army Terminal", NYCEDC, in partnership with Con Edison, developed a smart grid demonstration project at the Brooklyn Army Terminal (BAT) in Sunset Park. The program aims to achieve local job creation, growth in energy storage industry and attract private investment. The goal is increasing sustainability and resiliency of the city and an 80 percent reduction greenhouse gas emissions by 2050.

There are several other parallel programs in the city that NYCEDC provides funds and incentives for individuals and businesses to address the same issue.

4. Policy options:

Considering the current problem of the city regarding fostering sustainability, resiliency, and equity through smart city ideas, there are always other alternatives to the current policy. Noting that there are pros and cons associated with each of the alternatives.

As an alternative to this current policy and program, the city of New York can maintain the status quo. Since New York is already one of the leading cities in the US, this option is a serious alternative. NYC has the reputation of being the center of innovation and it poses lots of functional infrastructure that make it an attractive destination to many entrepreneurs and individuals, specifically in the area of technology and smart innovations. However, due to the high costs of investment and input, high tax rates, and high cost of living, it does not necessarily absorb young tech-savvy innovative individuals who might be very interested in moving to NYC. Because if NYC was able to do so, Silicon Valley and other similar locations would not be the first options for these entrepreneurs and individuals.

Another policy option is to target big firms such as IBM and CISCO that are active in the area of smart technologies by using tax breaks and/or tax incentives to encourage them to find innovative solutions for the challenging issues in the city. Big firms are already established, they have established organizational structure, and staff that know how to follow the rules and are aware of the limitations, risks, uncertainties, and policies. They have more flow of knowledge and have more equipment and possibilities of become successful. Since they are more experienced the probability of being them successful is higher. These tax incentives might encourage them to be more responsive, move to New York City, and use these tax benefits to innovate smart solutions. Also, they can increase their employment and consequently yield social benefits.

However, there are downsides by devoting the funds and opportunities to big firms as well. Since these big companies and firms know all the rules and regulations and they have knowledgeable lawyers, they know how to negotiate with the governmental officials and take advantage of the condition. They might misuse the opportunities and by the end of the policy term, such as the end of the tax incentives period, they would not continue to act as the way they supposed to. So, these policies are not necessarily reliable and accountable. In addition, policy makers usually overestimate the benefits of these incentives. Costs frequently exceed the benefits and companies do not necessarily employ local residents or unemployed individuals, and the cost of the tax burden will be bore by the general public.

Another policy option would be investment in public infrastructure. This policy can focus on providing infrastructure and facilities necessary for expanding smart cities, technologies, and cleantech. By providing these facilities, NYC can create desirable context for specific labor and capital in this area of specialization to move to the city. Providing necessary public infrastructure and attractive environment for tech-savvy entrepreneurs and companies can persuade workers to be willing to move to NYC and accept high cost of living in NYC. Also, these public infrastructures may serve as an input into these firms' production function.

Nonetheless, since NYC is a huge city with lots of old infrastructure, and a huge number of residents and tourists who are moving around the city all over the day, this option has its own limitations and downsides. It would be very costly for the city to provide smart infrastructure that needs huge amount of funds that will be a burden on tax payers. Also, it will take a very long time for the city to be able to implement new infrastructure which is why the city struggles with this policy option for a long time.

Thus, these policy options can be considered as alternatives to the current policy that NYCEDC launches. However, as it is identified earlier each of these alternatives has their limitations and downsides that need to be considered before implementation or substitution. Additionally, it is possible to consider these options as complimentary options to the current policy instead of substituting the current policy.

5. Evaluation:

This section of the paper deliberates different aspects of each of the policy options presented earlier including the current policy option that the city of New York launches. Each of these policies has positive and negative effects on economic development of the city. By evaluating and comparing these options we would like to find the best solution for the current condition and problem of the city based on the theories of regional economic development.

The current policy which is the implementation of Urbantech NYC utilizes the idea of agglomeration and innovation. Based on the endogenous growth theories, new ideas

(innovation, technological progress and knowledge spillover) are the reasons of local and national economic growth (Romer, 1990). City of New York considers providing shared space and resources for the talented innovators, and based on the theories of agglomeration and innovation, it can cause growth and economic development and create economies of scale in the production at these hubs. It also allows small businesses and entrepreneurs to act as if they have a greater scale and join together without sacrificing their flexibility (Porter, 1998). In these hubs entrepreneurs and small firms share specialized inputs and business services. Innovative activities will be decentralized over small businesses instead of concentration on one vertically-integrated firm. However, there are little empirical evidence proving the importance of input sharing, so there is a need to analyze this program after some time of execution to evaluate its success.

In this context of sharing spaces, the process of matching in the labor market would occur in a more efficient way. There is higher probability of finding suitable jobs for the workers and filling out the opening positions by suitable skilled workers. The mobility of workers in this platform would support the process of innovation. Peer pressure and competition and the desire to look successful, also, make entrepreneurs to try harder that increase their productivity. However, there are negative effects based on the increased tension and competition among individuals and entrepreneurs for employment, innovation, and patent citation (Porter, 1998).

The current policy, UrbanTech NYC, considers that by providing space and shared equipment to talented minds, they would potentially find solutions for the challenging urban issues in NYC. Based on the theories in agglomeration and innovation, knowledge varies to the degree that it is tacit or articulable. Depending on the degree to which it can or cannot be standardized, it could be articulable or tacit. Articulable knowledge can be easily standardized, codified and transmitted. It can be transmitted through journal articles, medium, and reports. Tacit knowledge, in contrast, is convoluted with a higher degree of uncertainty. It can be interpreted in different ways so, face-to-face interactions and communications make its transmitting easier from one to another. Consequently, geographic proximity plays a more important role in transmitting tacit knowledge than

articulable knowledge (Audretsch and Feldman, 1996). Since smart technologies and cleantech knowledge are new and less standardized it is part of the tacit knowledge so proximity plays an important role for its transmission.

Considering the location of innovative activity, there is an important aspect regarding *where* the innovation takes place. The significance of location in this context is due to the concept of knowledge spillovers. It is about how knowledge can be transmitted to others by interactions among those who utilize it and those who produce it. These spillovers could be costly by being geographically distant from the location of knowledge production. The cost of transmitting knowledge and specifically tacit knowledge could rise by geographical distance (Audretsch and Feldman, 1996). In these new hubs in Manhattan and Brooklyn, entrepreneurs and innovators work together in a same platform that allow the knowledge spillovers through close proximity and interactions among innovators. Also, there are several studies that suggest that for utilizing knowledge spillovers, location and proximity matter. There are several scholars that implicitly consider the assumption that innovative activity takes place where the knowledge generating inputs are high in knowledge production function. Based on these studies and tacitness of knowledge and how it affects the importance of knowledge spillovers, innovative activity tends to cluster more in industries that their production depends on utilization of tacit knowledge. Since NYC deals with complicated problems, one solution is expanding innovative ideas and let the brightest minds to expand knowledge and let knowledge spillovers help to expand better solutions for the enduring problems of city by smart technologies.

It is crucial to consider that in the early stages of the industry life cycle, tacit knowledge plays a relatively more important role in generating innovative activity. So, in early stages of the industry life cycle the proximity has more influence. So, for the entrepreneurs and startups who are young, tech-savvy individuals who are sharp and smart, in early stages of their innovative career this proximity of being in a shared space with other young innovators will help them to be more productive and creative. Thus, by clustering of these innovative activities, these entrepreneurs can take advantage of proximity such as knowledge spillovers and information flows.

Another policy option that was discussed in previous section is targeting big companies and providing tax incentives to encourage more innovations. This is a chasing and acquisition strategy that attracts established firms into the city and make growth and economic development happens. There are some benefits in utilizing tax incentives. In this policy, corporations would be more footloose and responsive to the incentives, so, corporations such as IBM would be more active in those areas of research that the city is more interested such as the reduction of greenhouse gas emissions. Also, since one of the goals of the city is to keep talented innovators in NYC, with this tax incentives there is this possibility to increase local employment, and consequently improve social benefits. The social benefits can include attracting more innovators to NYC instead of competitors such as Silicon Valley.

Although this tax incentive is a common policy that many states and local governments exploit nonetheless, empirical studies indicate that these incentives are not as effective as policy makers assume. Or even if they are effective there are some risks and downside accompanying them such as the risk of companies misuse the incentives and not meet the criteria of the incentives.

Since New York is already a well-known city that most of firms and entrepreneurs would like to invest if they find the way for it, city should be careful in the implementation of this policy. There are some ways to prevent potential problems with tax incentives to strengthen the position of the city in the process of negotiation and protect public investments and benefits (Morgan, 2009). There should be more enforceable contracts that carefully articulate all the criteria of the contract and the contract also should be clear and transparent to not allow any of the entities to misuse the criteria of the contract. Also, the city should do a more rigorous cost-benefit analysis to reduce the probability of overestimating the benefits and underestimating the costs of the incentives.

In addition, there are some ways to make the process of the decision making for tax incentives more democratic (Bartik, 2009). There should be full public information available regarding the offers and the results. Since this big firms that are the target of

these incentives have authoritative power, there should be some provisions for recovering incentives in case they could not meet the goals of the policy.

Another policy option that was discussed earlier is investment in public infrastructure necessary for establishment of smart technologies in the city. In this option, by providing required public infrastructure, city wants to increase the opportunities for firms to increase their productivity and reduce their input costs. Any big company that want to work in the intended area can use the infrastructure and even other firms might benefit from that. Since these kinds of infrastructure are considered as public good any firm can utilize the benefits without affecting its benefits to other firms.

Other outcomes of this policy would be attracting more firms to the city in this specialized area of work, and the probability of firms being competitive and have more successful output would increase. In the vein, the availability of infrastructure may help the city to build a cluster of high-tech firms in the city that finally may have the increasing returns of industrial clustering.

Thus, based on different regional economic developments , each of the policy options would have different effects and based on these different effects the city needs to choose which policy to adopt to reach the intended goals.

6. Recommendation:

Increasing resiliency, sustainability, and equity seems to be a common goal and was out there for a while in urban planning and policy issues. However, to what extent the previous policies were successful is another issue that needs to be studied in detail. The current policy that NYCEDC proposed to improve the condition of the city and provide resources to new entrepreneurs to find innovative solutions based on smart technologies is a new approach that can be successful. It already presents a mix of infrastructure development, and clustering and agglomeration of innovations, and since it is affordable and flexible for new entrepreneurs it is the preferable policy.

Based on the literature, policies that reduces costs/obstacles of becoming an entrepreneur include:

- Reducing regulatory burden
- Making knowledge more accessible
- Increase expected payoff of entrepreneurship
- Decrease risk/uncertainty
- Immigrant entrepreneurship
- Cluster policies
- Improve area's business environment and quality of life
- Build infrastructure that make the region more attractive to both firms and households

Since the current policy is related to improving entrepreneurship, and since smart technologies are relatively new, novel economic development can provide a platform that increases the level of innovation and creativity in a successful environment for entrepreneurs. In addition, since the current policy deals with tacit knowledge, in my opinion, it is the preferred policy for the current condition of NYC.

Shared spaces and facilities make the knowledge spillover occurs more frequently, and also interactions among individuals and small firms foster more exchange of information and knowledge. Exchange of information and knowledge among these clustered new firms that involved in innovative activities can reduce uncertainties and risks that are involved in innovative untested ideas. However, since knowledge spillover is invisible, the measurement of it is challenging and there is a need to rely on indirect ways to empirically verify it. There are two main mechanisms to verify the knowledge spillovers, one is that knowledge transmitted through people, and another one is how knowledge embodied in the goods that are produced (Feldman, 2000). Thus, based on different indirect mechanisms it is somehow possible to understand the extent to which the knowledge spillovers exist and have influence on the clustering of innovative activities of industries.

These shared platforms also foster a dense clustering of smart industry possible. Small entrepreneurs and innovators gather in one space that ensures the most interactions

among them. Studies demonstrate that development of new industry and knowledge externalities occur wherever local intellectuals reside and this development is bounded spatially (Feldman, 2000).

This policy also built a platform with infrastructure, equipment and pilot opportunities that make it more attractive to both firms, entrepreneurs, and innovators. So, NYC can be successful to retain talented innovators and entrepreneurs in the city and ensure that NYC would be the first location that innovative and new ideas to be emerged.

7. References:

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