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Research Article

RETAINING LOCAL INVENTORS AND SCIENTISTS FOR ECONOMIC DEVELOPMENT THROUGH POLICY AMENDMENTS

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ABSTRACT

The study investigates the retention of local inventors and scientist for economic development through policy amendments. It aims to investigate how may the profile of the respondents be described in terms of gender, age, highest educational attainment, and, years of experiences in his/her field. Likewise, to measure existing policies to the retention of local inventors and scientists in the Philippines demonstrating "as Planned" and "as Implemented" among the respondents, to what extent do these policies affect the decision of local inventors and scientists to stay or leave the country, and to what extent does the demographic profile moderate the retention of scientist and inventors in the Philippines.

This study utilizes the descriptive quantitative research design which aims to describe the systematically and accurately phenomenon and situation of the study. Purposive sampling is utilized in gathering the sample size. It is straightforward and simple in its complexity. The study comprised One Hundred Fifty (150) only.

Results show that most of the profiles of respondents are female with the age bracket of 46-66 years of age where they have obtained a graduate studies with 11-15 years of experienced as inventors and scientists in their own fields which shows that they are knowledgeable on the RA 7459 and RA 11035 among them as basis for economic development policy amendment, show that the existing policies to the retention and local inventors and scientists are initially planned by the respondents which is being supported by the government. Likewise, the implemented policies of RA 7459 shows that they are being supported by the government as mandated in the existing policy for the retention of local inventors and scientists in the Philippines, show that the extent of the policies for the decision the local inventors and scientist to stay or leave in the country is being initiated in the objectives of RA 7459 which are

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conducive for the respondents to stay in the country because the policy is being supported from the government significantly that influences their decision to continue their work as an inventor/scientist in the Philippines, and show that the extent of the demographic profile moderate in retention of scientists and inventors in the Philippines under the incentives of RA 7459 that motivates them to continue their work as a scientist/inventor in the Philippines since they are satisfied with the overall support from the government for scientists and inventors influence their decision to stay or leave the country.

KEYWORDS

Republic Act 7459, Republic Act 11035, local scientist, local inventors, and economic development policy amendment.

INTRODUCTION

The importance of local inventors and scientists in driving economic development is well-established. Across the globe, nations that prioritize investment in science and technology often demonstrate robust economic growth and innovation. These professionals, with their specialized knowledge and skills, fuel technological advancement and industrial progress, driving economic development and prosperity. They generate new knowledge, promote innovation, and create high-skilled jobs, which all contribute to increased productivity and economic growth (Pan, et al., 2022, pp. 303-311). Hence, it provides technological innovation and high-quality economic development inevitable requirements of a sustainable digital economy. It has a gradually new engine to enhance technological innovation and the high-quality development of the present economy (Mallillin, et al. 2022). It deeply discusses the effect of the digital economy on high-quality economic development and clarifies the mechanism. It can effectively grant the boosting power of the digital economy to high-quality development, which is of great practical significance to sustainable economic development. It promotes high-quality development of the economy. In addition, the function of digital economy scientists and inventors in promoting high-quality economic development innovates the transmission path of digital economy to high-quality economic development (Ding, et al., 2022).

Moreover, the invention and incentive inventors which is known as the Republic Act No. 7459 supports and encourages the act to provide the Filipino scientist and inventors to maximize their productivity and capability through form of incentives and support which is also known as the Balik Scientist Act or RA 11035. Hence, in the context of the Philippines, the nation is endowed with a wealth of inventors and scientists who possess the potential to significantly contribute to the country's economic development. The Government has implemented various programs to harness this potential, such as the Department of Science and Technology's (DOST) "Balik Scientist Program" and the establishment of institutions like the Philippine Science High School. However, despite these efforts, the retention of these talented individuals remains a significant issue (Blind, et al., 2022, pp. 979-999). It examines the innovation-driven effects of digital economy on total factor productivity on local scientists and is calculated by the dual approach and the digital economy index. It demonstrates the digital economy acts as an innovation driver for the extensive and

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sustainable development of scientists and inventors for economic development (Mallillin, & Mallillin, 2019). It provides valuable reference resources for the concerned to cross the barriers existing in technological information, Mallillin, et al. (2020) and a launch cooperative program for economic development through policy in the system (Chollisni, et al., 2022, pp. 413-426).

In addition, the perceived gap in this context lies in the current policies that govern the treatment of local inventors and scientists. Despite the availability of these talented individuals, Mallillin, (2021) there exists a problem in retaining them for long-term contributions to economic development. The existing policies seem to be insufficient in recognizing their value, providing them with adequate support, and incentivizing their contributions. As a result, many talented inventors and scientists often seek opportunities abroad where they can get better recognition and support. This perceived gap in policy has significant implications on the country's economic growth and development as it limits the full utilization of homegrown talents in science and technology. The study, therefore, seeks to address this gap through the examination and amendment of existing policies (Forson, et al., 2021, pp. 291-318). It devotes to substantiation of directions of intensification of development of small innovative which leads to local inventions and scientists for economic development. It has a significant impact on the overall innovation activity of the country and promotes innovative development, transition to more advanced technological systems as part of the invention in economic development. The role and outline of innovative development in the direction of intensifying innovation in the economy, improving organization and production, as well as in the form of direct participation in the innovation process, production of science-intensive products, stimulating demand for innovation on the local scientists and inventors for economic development policies. It provides factors hindering the development of business innovative entrepreneurship to include financial aspects of the activity, shortcomings of organizational and communicative nature, underdeveloped technology market, information plan problems, internal production problems of small business, market problems (Antypenko, et al., 2021).

Background of the Study

The economic development and the role of inventors and scientists in the nation is often driven by key sectors and industries, amongst which the scientific and technological sectors hold a crucial place. Inventors and scientists are the backbone of these sectors, driving growth and development through research, innovation, and knowledge creation. They play a crucial role in generating innovative solutions for a range of problems, from environmental issues to healthcare advancements, directly contributing to a country's socioeconomic development. It develops the point more clearly in a formal model to explore the past and future of economic growth through economic policy development. It provides the scientists and inventors to make a key point of the growth of and development success. It provides ideas for the increased return of the implication of the long-run rate of economic growth in the effort of scientists and inventors in the economic development program (Jones, 2022, pp. 125-152).

On the other hand, the state of inventors and scientists in the Philippines holds significant potential for the country's economic development as based on the existing policy to the retention of local inventors and scientists in the Philippines as planned and as implemented. These professionals are the result of a

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rigorous educational system and several governmental and non-governmental programs. Notably, the Department of Science and Technology (DOST) has been keen on encouraging the growth of this demographic through various initiatives, such as the Balik Scientist Program, which aims to encourage Filipino scientists abroad to return and contribute to national development. It discusses the effects of the digital economy on high quality development and its mechanism. Theoretically, the digital economy development can empower high-quality through boosting entrepreneurial vitality. It measures the overall level of the digital economy business and high-quality development to depict the entrepreneurial vitality of the business economic information and makes quantitative analysis on this basis among scientists and inventors. The high technology of the economy has remarkably improved high-quality development for policy making. The analysis of the mechanism of action indicates to encourage public entrepreneurship as an important mechanism of the digital economy of high quality development. It stimulates the reasons for high-quality development and the understanding of the effects, mechanisms and regional differences of high-quality development empowered by the digital economy (Tao, et al., 2022).

Furthermore, the issue of retention on retaining local inventors and scientists for economic development through policy amendments stride the retaining talent within the country and presents a significant challenge. A myriad of factors is responsible, primarily revolving around policies related to compensation, career growth opportunities, working conditions, and research grants. The insufficiency of these factors often drives scientists and inventors to seek opportunities abroad, where they may receive better compensation, recognition, and opportunities for their work. It collaborates with an openness in scientific research to attract the increased attention from scientists and inventors for economic development practitioners. The common understanding of these phenomena is hindered by disciplinary boundaries and disconnected research streams. It links with dispersed knowledge on open Innovation, open science, and related concepts for responsible research. It captures the framework and issue and retention on antecedents, contingencies, and consequences of open and collaborative practices along the entire process of generating and disseminating scientific insights and translating them into innovation (Beck, et al., 2022, pp. 136-185).

Moreover, the current policies and shortcoming of existing policies in the Philippines that cater to the needs of inventors and scientists include the Balik Scientist Act and the Magna Carta for Scientists. These policies aim to provide incentives for scientists and inventors to stay or return to the country. However, while these policies are steps in the right direction, they appear insufficient in adequately addressing the needs and aspirations of these professionals. Issues such as inadequate financial incentives, limited opportunities for career progression, and a lack of robust support for research and innovation persist, prompting the exodus of talent overseas. Complex technologies offer substantial economic benefits, and on the other, they are difficult to invent and to imitate, and they refuse a fast dissemination especially on economic development policy and amendment. It provides motivation on the idea for competitive advantages and in consequence to economic growth. It originates in the ability to produce and utilize complex technologies. Knowledge, in general, represents a critical resource in today's knowledge economy and argues to be a fundamental building block of competitive advantage and economic growth (Mewes, & Broekel, 2022, pp. 104-156).

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Given the essential role these professionals play in driving economic development, the issue of their retention is critical. Therefore, this study aims to delve into these policies, identify their gaps, and propose amendments to address the problem of retaining local inventors and scientists for economic development in the Philippines.

Statement of the Problem

While the Philippines boasts a wealth of local inventors and scientists with the potential to foster economic growth and development, there is a significant challenge of retaining these talented individuals within the country. This challenge is exacerbated by the lack of policies that appropriately acknowledge their value, deliver sufficient support, and incentivize their contributions. Consequently, the nation is faced with a brain drain that stunts its economic potential and technological advancement.

In light of this, the general problem that this dissertation addresses is: How can policy amendments enhance the retention of local inventors and scientists for economic development in the Philippines?

To dissect this problem, the following specific questions are posed:

1. How may the profile of the respondents be described in terms of

1.1 gender,

1.2 age,

1.3 highest educational attainment, and

1.4 Year of Experiences in his/her Field?

2. To what do the existing policies to the retention of local inventors and scientists in the Philippines demonstrate "as Planned" and "as Implemented" among the respondents?

3. To what extent do these policies affect the decision of local inventors and scientists to stay or leave the country?

4. To what extent does the demographic profile moderate the retention of scientist and inventors in the Philippines?

5. Is there a significant difference in the existing policies to the retention of local inventors and scientists in the Philippines demonstrating "as Planned" and "as Implemented" as observed among the respondents?

6. Is there a significant difference in the policies that affect the decision of local inventors and scientists to say or leave the country as observed by the respondents?

7. Is there a significant difference in the demographic profile that moderates in retention of scientists and inventors in the Philippines as observed among the respondents?

8. Based on the findings, what retaining local inventors and scientist policy amendment can be proposed?

Hypothesis

The researchers offer the following hypotheses:

1. There is no significant difference on the existing policies to the retention of local inventors and scientists in the Philippines demonstrate "as Planned" and "as Implemented" as observed among the respondents.

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2. There is no significant difference in the policies that affect the decision of local inventors and scientists to stay or leave the country as observed by the respondents.

3. There is no significant difference on the demographic profile that moderates in retention of scientists and inventors in the Philippines as observed among the respondents.

RESEARCH DESIGN

This study will utilize the descriptive quantitative research design. The observational cross-sectional study design will be used to collect and analyze empirical data. It aims to describe the systematically and accurately the phenomenon and situation of the study. It answers the what, where, and when of the study. It is a kind of method to investigates wide variety of variables. It does not manipulate or control the variables and results of the data. It focuses on the characteristics and combination correlational statistics for specific kinds of research methods, questions and outcomes. It distinguishes the design of the research especially the descriptive quantitative research as to validation of the finding and explanation. This will involve surveying a substantial number of local inventors and scientists across the Philippines to quantitatively assess the existing policies to the retention of local inventors and scientist in the Philippines demonstrate "as Planned" and "as Implemented" among the respondents, to what extent do these policies affect the decision of local inventors and scientists to say or leave the country, and to what extent do the demographic profile moderate in retention of scientist and inventors in the Philippines. It provides prospective insight into the decision-making process of the concrete data (Schreurs, et al., 2022, pp. 79-98).

Population and Sampling Technique

The population for this study encompasses local inventors and scientists currently residing and working in the Philippines, as well as those who have migrated abroad for professional reasons. The local inventors and scientists are coming from the different regions in the Philippines.

Purposive sampling is utilized in gathering the sample size. The researchers sent the questionnaire via Google Form. All the inventors and scientists who answered the questionnaire serve as the respondents of the study. Purposive sampling is a history development on views in the sampling size. It is straightforward and simple in its complexity Campbell, et al., (2020, pp. 652-661). On the other hand, it is a better matching

In retaining the local inventors and scientists in the Philippines for economic development. It improves the rigor of the study as to the result of the data and trustworthiness. The purposive sampling is described on its confirmability, dependability, transferability, and credibility. It outlines the intent of the nature of purposive sampling presenting the various context and application of the study. This ensures a representative sample of the different groups within the population. It collects the appropriate data in a challenging task of the researcher (Rahman, et al., 2022, pp. 42-51).

Research Instrument

The research instrument used is a self-administered questionnaire. The questionnaire is developed based on the existing literature and the conceptual framework. It is designed to capture respondents' views on the existing policies, their experiences, motivations, the challenges they face, and their suggestions for policy amendments with the approval of the research adviser as follows:

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Part 1 collected data and information on what the existing policies to the retention of local inventors and scientists in the Philippines demonstrate "as Planned" and "as Implemented" among the respondents.

Part 2 collected data and information on to what extent these policies affect the decision of local inventors and scientists to stay or leave the country.

Part 3 collected data and information on to what extent the demographic profile is moderate in retention of scientists and inventors in the Philippines.

On the other hand, the instrument tools designed provided valuable innovation on local inventors and scientists for the economic development amendment policy (Garst, et al., (2022, pp. 196-223).

Validity Test

Content validity ensured through careful instrument design based on the objectives of the study and existing literature. Further, the research instruments are reviewed and validated by a panel of experts familiar with the topic and research methodology to ensure accuracy, clearness, and comprehensive in capturing the information needed. This has been sent to 5 expert validators from the Department of Science and Technology to validate the questionnaire because they are the right person to validate since the study is all about retention of local inventors and scientists in the economic development as an amendment to policy among the respondents.

Reliability Test

The questionnaire has been a pilot study among the different directors of the Department of Science and Technology (DOST) using the Cronbach Alpha. They are not included for the respondents of the study. The data gathered from the pilot study will be used to calculate Cronbach's alpha to measure the internal consistency of the instrument. The result of the Cronbach Alpha is 0.821 which falls on acceptable in the internal consistency of Cronbach Alpha.

Statistical Treatment

The gathered data from the questionnaire will be statistically treated and analyzed using appropriate statistical methods. The specific methods to be used are as follows:

1. Descriptive Statistics: To present an overview of the sample, descriptive statistics such as frequencies, percentages, means, and standard deviations will be used. This will provide a general understanding of the distribution of responses for each item in the questionnaire for to what do the existing policies to the retention of local inventors and scientist in the Philippines demonstrate "as Planned" and "as Implemented" among the respondents, to what extent do these policies affect the decision of local inventors and scientists to stay or leave the country, and to what extent do the demographic profile moderate in retention of scientist and inventors in the Philippines?

2. T-test, multiple regression, and anova is used to measure the strength and direction of the linear relationship between two variables on the significant difference on the existing policies to the retention of local inventors and scientist in the Philippines demonstrate "as Planned" and "as Implemented" as observed among the respondents, significant difference on the policies that affect the decision of local inventors and scientists to say or leave the country as observed by the respondents, and significant difference on the demographic profile that moderates in retention of scientist and inventors in the Philippines as observed among the respondents.

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RESULTS AND ANALYSIS

1. On the Profile of the Respondents

Table 1

Extent of Demographic Profile Retention

Profile	Frequency	Percentage
Gender:		
Male	48	32
Female	98	62
Prefer not to say	9	6
Age:		
25 years and below	5	3.3
26-35 years	25	16.7
36-45 years	29	19.3
46-55 years	76	50.7
56 years and above	15	10
Educational Attainment:		
Undergraduate	17	11.3
Graduate	50	33.3
Post Graduate	83	55.3
Years of Experiences in Your Field:		
5 years and below	20	13.3
6-10 years	21	14
11-15 years	58	38.7
16 years and above	51	34

Table 1 presents the frequency and percentage distribution as to the extent of the demographic profile of the respondents.

It shows in the table that most of the respondents are female who got a frequency of 98 or 62% among them which means that they have the skills as local inventors and scientists for the economic development in the country. On the other hand, 76 or 50.7% belong to the age bracket 46-55 years old which means they can help in the amendment policy for economic development. Hence, most of them are Postgraduate studies, with a frequency of 83 or 55.3% among which they have the necessary knowledge of the amendment policy of economic development in the country. In addition to the number of years in their field of expertise which is 58 or 38.7% among the respondents. Their field of expertise can help in the policy amendment on economic development since they can propose to the fullest.

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Findings show that the profile of the respondents can complement the structural approach on traditional economic development policy amendment. It contributes to the concept and theory Mallillin, & Laurel, (2022) of retaining local inventors and scientists for economic development policy amendment in the country such as individuals, systems, or organizations because they can support their programs and inventions as scientists and inventors in the country. It illuminates the country's process and transformation and change especially on the economic mechanism as contributory success of the country Philippines (Grillitsch, 2022, pp. 248-275).

2. On to what do the existing policies to the retention of local inventors and scientist in the Philippines demonstrate "as Planned" and "as Implemented" among the respondents

Table 2

Existing Policies to the Retention of Local Inventors and Scientists in the Philippines "as Planned" Among the Respondents

As Planned	WM	SD	I
1. How would you rate the overall quality of RA 7459 (The Inventors and Invention Incentives Act of the Philippines) as it was initially planned?	3.89	0.95	HE
2. How would you rate the overall quality of RA 11035 (The Balik Scientist Act) as it was initially planned?	3.18	0.81	ME
3. On a scale of 1-5, how effective do you believe the planned policies of RA 7459 would be in supporting local inventors and scientists?	3.81	0.96	HE
4. On a scale of 1-5, how effective do you believe the planned policies of RA 11035 would be in supporting returning scientists?	3.17	0.89	HE
Average Weighted Means	**3.51**	**0.90**	**HE**

Table 2 presents the weighted mean and the corresponding interpretation on the existing policies to the retention of local inventors and scientists in the Philippines "as Planned" among the respondents.

It shows that respondents are High Extent on the questions "How would you rate the overall quality of RA 7459 (The Inventors and Invention Incentives Act of the Philippines) as it was initially planned? and How effective do you believe the planned policies of RA 7459 would be in supporting local inventors and scientists? with the weighted means and standard deviations of 3.89 and 0.95; 3.81 and 0.96, respectively. They rate Moderately Extent on the questions How would you rate the overall quality of RA 11035 (The Balik Scientist Act) as it was initially planned? And How effective do you believe the planned policies of RA 11035 would be in supporting returning scientists? with the weighted means and standard deviations of 3.18 and 0.81; 3.17 ad 0.89, respectively. The overall weighted mean of 3.51 on the existing policies to the retention of local inventors and scientists in the Philippines are rated as High Extent in terms of "AS PLANNED".

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Findings show that the existing policy of retention to local inventors and scientists as planned on the support of RA 7459 and RA11035 build knowledge in mechanism and impact among them especially on the technology economic support and development among them. The experience of the inventors and scientists retention mechanism upstream their alliance and strategic intention (Mallillin, 2020, pp. 1-11). It acquires the subsequent economic development as planned to the retention of local scientists and inventors that demonstrate positive retention and impact. It is a high growth survival dependency on products and new technology of inventions. It encompasses on the planned knowledge on various programs and support in the economic development policy (Leone, et al., 2022).

Table 3

Existing Policies to the Retention of Local Inventors and Scientist in the Philippines "as Implemented" Among the Respondents

As Implemented	WM	SD	I
1. How would you rate the overall quality of RA 7459 as it is currently implemented?	3.88	0.93	HE
2. How would you rate the overall quality of RA 11035 as it is currently implemented?	3.50	0.92	HE
3. On the same scale, how effective do you believe the currently implemented policies of RA 7459 have been in supporting local inventors and scientists?	3.88	0.98	HE
4. On the same scale, how effective do you believe the currently implemented policies of RA 11035 have been in supporting returning scientists?	3.67	0.97	HE
Average Weighted Means	**3.73**	**0.95**	**HE**

Table 3 presents the weighted mean and the corresponding interpretation on the existing policies to the retention of local inventors and scientists in the Philippines "as Implemented" among the respondents.

It shows that the respondents' rate as High Extent on the following questions: How would you rate the overall quality of RA 7459 as it is currently implemented; How effective do you believe the currently implemented policies of RA 7459 have been in supporting local inventors and scientists; How effective do you believe the currently implemented policies of RA 11035 have been in supporting returning scientists; and How would you rate the overall quality of RA 11035 as it is currently implemented?, with the weighted means and standard deviations of 3.88 and 0.93, 3.88 and 0.98, 3.67 and 0.97 and 3.50 and 0.92, respectively. The overall weighted mean of 3.67 that the existing policies to the retention of local inventors and scientists in the Philippines demonstrate rated as High Extent in terms of "as Implemented.

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Finding show that the existing policy supports the RA 7459 and RA 11035 for the local inventors and scientist to extent encouragement to maximize the productivity and capability support and assistance in addition, to the strength on the implementation of the programs in technology resources in the academe to promote knowledge Mallillin, & Caranguian, (2022) and flow of the RA on the implementation of local inventors and scientists in the development of economy in the Philippines. It transforms the emergence of technology and innovation to remain competent and perspectives on their various inventions and development as to analysis of innovative activities, components and product innovation (Lim, 2022).

3. On to what extent do these policies affect the decision of local inventors and scientists to stay or leave the country

Table 4

Extent of Policies on the Effect of Local Inventors and Scientists Decision to Stay of Leave the Country Among the Respondents

Extent Policies of Respondents Decision	WM	SD	I
1. The incentives provided by RA 7459 (The Inventors and Invention Incentives Act of the Philippines) significantly influence my decision to stay or leave the country.	3.73	0.92	HE
2. The incentives currently implemented under RA 7459 are sufficient to encourage me to stay in the Philippines	3.51	0.99	HE
3. The initial objectives of RA 7459 were conducive to my decision to stay in the country.	3.89	1.03	HE
4. The incentives provided by RA 11035 (The Balik Scientist Act) significantly influence my decision to stay or leave the country.	3.63	1.00	HE
5. The incentives currently implemented under RA 11035 are sufficient to encourage me to stay in the Philippines.	3.69	0.98	VHE
6. The initial objectives of RA 11035 were conducive to my decision to stay in the country.	3.70	0.97	HE
7. Policy support from the government significantly influences my decision to continue my work as an inventor/scientist in the Philippines.	3.82	0.99	HE
8. On a scale of 1-5, please indicate your current intention to stay or leave the country.	3.71	1.00	HE
Average Weighted Means	**3.71**	**0.985**	**HE**

Table 4 presents the weighted mean and the corresponding interpretation on to what extent these policies affect the decision of local inventors and scientists to stay or leave the country among the respondents.

It shows that the respondents rated High Extent. The initial objectives of RA 7459 were conducive to my decision to stay in the country. Policy support from the government significantly influences my decision to continue my work as an

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inventor/scientist in the Philippines. The incentives provided by RA 7459 (The Inventors and Invention Incentives Act of the Philippines) significantly influence my decision to stay or leave the country. Hence, on a scale of 1-5, please indicate your current intention to stay or leave the country. The initial objectives of RA 11035 were conducive to my decision to stay in the country. The incentives currently implemented under RA 11035 are sufficient to encourage me to stay in the Philippines. The incentives provided by RA 11035 (The Balik Scientist Act) significantly influence my decision to stay or leave the country, and The incentives currently implemented under RA 7459 are sufficient to encourage me to stay in the Philippines, with the weighted means and standard deviations of 3.89, 1.03; 3.82, 0.99; 3.73, 0.92; 3.73, 1; 3.70, 0.97; 3.69, 0.98; 3.63. 1; and 3.51, 0.99, respectively. The overall weighted mean of 3.71 rated as High Extent that these policies affect the decision of local inventors and scientists to stay or leave the country.

Findings show local inventors and scientists are being influenced on the policy to stay or leave the country to encourage and measure the control among them due to the present situation here in the Philippines in terms of stability, benefits, and salaries, and wages (Mallillin, 2017, pp. 58-74. Depends on the benefits. It proposes that the policy must consider the benefits to be offered among our inventors and scientists. The policies can encourage our inventors to stay or leave to support the government and maximize capability for the assistance being given to them. This must indicate the policies, the guidelines to compel the local inventors and scientists to stay as mandated in the RA No. 7459 and RA 11035. It indicates the degree of policy to be followed and implementation of the intended policy (Liu, et al., 2023, pp. 1-15).

4. On what extent do the demographic profile moderate in retention of scientist and inventors in the Philippines

Table 5

Issues and Retention on the Extent of Demographic Profile of the Respondents

Issues and Retention	WM	SD	I
1. The incentives under RA 7459 motivate me to continue my work as a scientist/inventor in the Philippines.	3.80	1.00	HE
2. The incentives under RA 11035 motivate me to continue my work as a scientist/inventor in the Philippines.	3.76	1.03	VHE
3. The implementation of policies under RA 7459 meets my expectations as a scientist/inventor.	3.75	1.13	ME
4. I am satisfied with the overall support from the government for scientists and inventors influencing my decision to stay or leave the country.	3.77	1.08	HE
Average Weighted Means/ Standard Deviation	**3.77**	**1.06**	**HE**

Table 5 presents the weighted mean and the corresponding interpretation on the extent do the demographic profile moderate on issues and retention of scientists and inventors in the Philippines.

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It shows that respondents rated High Extent that incentives under RA 7459 motivate them to continue their work as scientists/inventors in the Philippines. They are satisfied with the overall support from the government for scientists and inventors. It influences their decision to stay or leave the country. The incentives under RA 11035 motivates them to continue their work as scientists/inventors in the Philippines. Hence, the implementation of policies under RA 7459 meets their expectations as scientists/inventors with the weighted means and standard deviations of 3.80,1.00; 3.77, 1.08; 3.76, 1.03 and 3.75, 1.13, respectively. The overall average weighted means of 3.77 on the issues and retention is rated as High Extent.

Findings show that the extent of the demographic profile moderate on issues and retention of scientists and inventors in the Philippines is the technology relevance on the increased modern innovation and interdisciplinary exploration collaboration and implementation as based on the support and implementation by the mandated policy and in the government. It highlights the concept and theory of issues, challenges, and retention among the local inventors and scientists in terms of their roles and innovation in the promotion of products that can support the economic development as part of the policy

Mallillin, (2021, pp. 17-28) in the country. It develops prospective on the program and promotion of the RA 7459 and RA 11035. It analyzes the issues and retention of scientists and inventors in the Philippines. It implements the effectiveness of gaining and important strategy in the economic development process policy of such RA Act explained above (Shmeleva, et al., 2021).

5. On the significant difference on the existing policies to the retention of local inventors and scientist in the Philippines demonstrate "as Planned" and "as Implemented" as observed among the respondents

Table 6

Test of significant difference on the existing policies to the retention of local inventors and scientist in the Philippines demonstrate "as Planned" and "as Implemented" as observed among the respondents

T-test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
As Planned VS As Implemented	-0.217	0.430	0.035	-0.286	-0.147	-6.17	149.00	0.00

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Table 6 presents the test of significant difference on the existing policies to the retention of local inventors and scientists in the Philippines demonstrating "as Planned" and "as Implemented" as observed among the respondents.

It shows in the table that the calculated t-ratio of /-6.17/ is higher than the P-value of 0.00 at 0.05 level of significance it falls under the area of rejection. The null hypothesis that there is no significant difference in the existing policies to the retention of local inventors and scientists in the Philippines demonstrate "as Planned" and "as Implemented" as observed among the respondents. Therefore, it is safe to say that there is no significant difference in the existing policies to the retention of local inventors and scientists in the Philippines demonstrate "as Planned" and "as Implemented" as observed among the respondents.

Findings of the study have been proven by the study conducted by Nadig, et al., (2018, pp. 1712-1728) on the support program of plan and implementation transition to quality of life and self-determination. It improves the outcome of planned and implementation programs of individuals in support of the program and promotion of such activities and products that can enhance economic development.

6. On the significant difference on the policies that affect the decision of local inventors and scientists to say or leave the country as observed by the respondents

Table 7

Test of significant difference on the policies that affect the decision of local inventors and scientists to say or leave the country as observed by the respondents

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60.996	1	60.996	174.028	.000[b]
	Residual	51.873	148	.350		
	Total	112.869	149			
2	Regression	69.726	2	34.863	118.789	.000[c]
	Residual	43.143	147	.293		
	Total	112.869	149			

Table 7 presents the test of significant differences on the policies that affect the decision of local inventors and scientists to stay or leave the country as observed by the respondents.

It shows in the table that the calculated F-ratios of 174.028 and 118.789 are greater than the P-value of 0.00 at 0.05 level of significance falls under the area of rejection. Hence, the hypothesis shows that there is a significant difference in the policies that affect the

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decision of local inventors and scientists to say or leave the country as observed by the respondents.

The study is being supported on the different impact of the effect and decision of policies as conducted by Tzabbar, et al., (2022, pp. 2250-2273). Findings show the collaboration of various activities to stay or leave outward mobility. It affirms the likelihood of the inventors or scientists ventures in distinguishing the invention and development opportunity.

7. On the significant difference on the demographic profile that moderates in retention of scientist and inventors in the Philippines as observed among the respondents

Table 8

Test of significant difference on the demographic profile that moderates in retention of scientist and inventors in the Philippines as observed among the respondents

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Gender	Betw een Groups	4.132	13	0.318	1.012	0.444
	Within Groups	42.728	136	0.314		
	Total	46.86	149			
Age	Betw een Groups	20.871	13	1.605	1.726	0.062
	Within Groups	126.522	136	0.93		
	Total	147.393	149			
Education Attainment	Betw een Groups	5.6	13	0.431	0.896	0.559
	Within Groups	65.36	136	0.481		
	Total	70.96	149			
Year of Experience	Betw een Groups	31.299	13	2.408	2.728	0.002
	Within Groups	120.034	136	0.883		
	Total	151.333	149			

Table 8 presents the test of significant difference on the demographic profile that moderates in retention of scientists and inventors in the Philippines as observed among the respondents.

It shows in the table that the calculated F-ratio of 1.012 is less than the P-value of 0.444 at 0.05 level of significance, it means that the null hypothesis is accepted in terms of Gender. The calculated F-ratio of

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1.726 is lesser than the P-value of 0.062 at 0.05 level of significance, it means that the null hypothesis is accepted in terms of Age. The Calculated F-value of 0.896 is less than the P-Value of 0.559 at 0.05 level of significance, it means that the null hypothesis is accepted in terms of Educational Attainment. And the calculated F-ratio of 2.728 is greater than the P-Value of 0.002 at 0.05 level of significance, it means that the null hypothesis is rejected. The null hypothesis that there is no significant difference in the demographic profile that moderates in retention of scientists and inventors in the Philippines as observed among the respondents is accepted in terms of Year of Experience and not accepted in terms of Gender, Age and Educational Attainment.

Findings of the study is being supported by the study of Grillitsch, (2022, pp. 248-275) to illuminate the country process and transformation and change especially on the economic mechanism as contributory success of the country Philippines as far as profile of the respondents is concerned (Grillitsch, 2022, pp. 248-275).

CONCLUSIONS

Based on the results of the findings, the conclusions are defined by the researcher follows:

1. It shows that most of the profiles of respondents are female with the age bracket of 46-66 years of age where they have obtained a graduate studies with 11-15 years of experienced as inventors and scientists in their own fields which shows that they are knowledgeable on the RA 7459 and RA 11035 among them as basis for economic development policy amendment.

2. It shows that the existing policies to the retention and local inventors and scientists are initially planned by the respondents which is being supported by the government. Likewise, the implemented policies of RA 7459 shows that they are being supported by the government as mandated in the existing policy for the retention of local inventors and scientists in the Philippines.

3. It shows that the extent of the policies for the decision the local inventors and scientist to stay or leave in the country is being initiated in the objectives of RA 7459 which are conducive for the respondents to stay in the country because the policy is being supported from the government significantly that influences their decision to continue their work as an inventor/scientist in the Philippines.

4. It shows that the extent of the demographic profile moderate in retention of scientists and inventors in the Philippines under the incentives of RA 7459 that motivates them to continue their work as a scientist/inventor in the Philippines since they are satisfied with the overall support from the government for scientists and inventors influence their decision to stay or leave the country.

5. It shows that there is no significant difference in the existing policies to the retention of local inventors and scientists in the Philippines to demonstrate "as Planned" and "as Implemented" as observed among the respondents.

6. It shows that there is a significant difference in the policies that affect the decision of local inventors and scientists to stay or leave the country as observed by the respondents.

7. It shows that there is no significant difference in the demographic profile that moderates in retention of scientists and inventors in the Philippines as observed among the respondents is accepted in terms of Year of

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Experience and not accepted in terms of Gender, Age and Educational Attainment.

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