

**UNITED STATES AIR FORCE (USAF)  
F-35A TRAINING BASING  
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)**

**EXPERT ECONOMIC ASSESSMENT  
OF THE USAF SOCIOECONOMIC IMPACT ANALYSIS  
FOR BOISE AGS**

Conducted by:

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This report was submitted formally to the United States Air Force on March 3, 2012 in response to the Air Force's invitation for comments on the Draft EIS by members of the public. I referred to this report in my oral statements at two public hearings in Boise, Idaho on February 27, 2012 and on February 28, 2012.

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## I. INTRODUCTION

### A. Qualifications

1. My name is Kevin E. Cahill, PhD. I hold a B.A. in both economics and mathematics from Rutgers College and an M.A. and Ph.D. in economics from Boston College, with a focus in applied econometrics and labor economics. Since earning my doctorate, I have consulted in a variety of industries including health care, pharmaceuticals, and banking. I have also conducted economic analyses related to public policy. My public policy research has focused primarily on the labor force participation patterns of older Americans, with particular emphasis on job changes later in life. My research has been published in *The Gerontologist*, *Research on Aging*, *Monthly Labor Review*, *Topics in Economic Analysis and Policy*, *Current Medical Research and Opinion*, *Journal of Managed Care Pharmacy*, and *Expert Opinion on Pharmacotherapy*, and by the Center for Retirement Research, the Center on Aging and Work, and the U.S. Bureau of Labor Statistics.
2. I am currently a Research Economist with the Sloan Center on Aging and Work at Boston College. I have been affiliated with the Center since its inception in 2005. In addition to serving as a Research Economist with the Sloan Center on Aging and Work, I was a Manager at Analysis Group, a top national economics and financial consulting firm with headquarters in Boston, Massachusetts. I have also served as the Associate Director for Research at the Center for Retirement Research at Boston College, as an expert witness with Tinari Economics Group, and as an Associate at Abt Associates, Inc., a for-profit public policy research firm based in Cambridge, Massachusetts. I am a member of the American Economics Association and the National Association of Forensic Economists.
3. I have testified in deposition and at trial on several occasions. My expert opinions pertained to lost earnings, including fringe benefits and pensions, and lost profits to business.
4. Although I am a researcher for Boston College, I currently reside in Boise, Idaho and have been a resident of Boise since March 2010. Prior to living in Boise, Idaho, I was a resident of Marshfield, Massachusetts.
5. My professional and academic qualifications are described in my curriculum vitae, which is attached as Appendix A.

## **B. The Proposed F-35A Pilot Training Center**

6. The United States Air Force (Air Force) is proposing Boise Air Terminal Airport Air Guard Station (Boise AGS) – which, for all intents and purposes, is located alongside Boise’s largest civilian airport – as a possible Pilot Training Center (PTC) and base for F-35A fighter jets. The Air Force describes the proposed pilot training center as follows: “*Proposed Action*: The Proposed Action is to base a Pilot Training Center (PTC) and beddown up to 144 F-35A training aircraft at one or more existing alternative locations. The PTC would support the training of Air Force, cooperative international partners, and U.S. Foreign Military Sales pilots in the safe and effective operation of the F-35A.”<sup>1</sup>
7. As part of its Draft F-35A Training Basing Environmental Impact Statement (DEIS), the Air Force has made a variety of claims with respect to socioeconomic impact. The Air Force claims: (1) “The analysis indicates that the number of off-installation residents affected by noise levels greater than 65 dB DNL [decibel day-night average sound level] would increase by approximately 3,000 to 10,000 people under the various basing scenarios”;<sup>2</sup> and (2) “Under the basing scenarios, between 2,188 to 2,635 direct, indirect, and induced jobs are anticipated and could be filled by unemployed persons in Ada Country.”<sup>3</sup>

## **C. Assignment**

8. I have been asked by various citizens of Boise, Idaho to: (1) review the DEIS issued by the United States Air Force, dated January 2012, as it pertains to Boise AGS; (2) assess the methodology used by the Air Force to determine the socioeconomic impact on the surrounding community;<sup>4</sup> and (3) assess the claims by the Air Force as they pertain to the socioeconomic impact on the surrounding community.
9. I have not been asked by the citizens of Boise, Idaho to comment on any personal opinions I may have – as a citizen of Boise, Idaho – with respect to the proposed F-35A PTC, nor do I offer such opinions in this report. The opinions expressed in this report are based solely on

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<sup>1</sup> Draft F-35A Training Basing Environmental Impact Statement (DEIS), cover sheet.

<sup>2</sup> DEIS, Summary of Environmental Impact Analysis, p. 2.

<sup>3</sup> DEIS, Summary of Environmental Impact Analysis, p. 4.

<sup>4</sup> The surrounding community includes Ada County and the city of Boise. The Air Force refers to this area as the Region of Influence (ROI). “The ROI for socioeconomics for the Boise AGS alternative is defined as Ada County, Idaho, and the city of Boise.” (DEIS, p. BO-122).

my expertise as a professional economist and apply strictly to the DEIS issued by the Air Force.

10. In the interest of full disclosure, an article of mine appeared in the Boise Guardian on February 17, 2012. A copy of the article is attached as Appendix B. The views expressed in the Boise Guardian article are based in part on my concerns as a resident of Boise, Idaho. In contrast, the views expressed in this expert report are based solely on my experience as a professional economist. While, naturally, I am concerned about Boise, any personal beliefs or concerns that I have regarding the DEIS are not included in this report.
11. I would like to note that I feel an incredible pride in our country and for our service men and women. I am deeply appreciative of the fact that I live in a country where civilians can offer opinions on a military proposal without fear of retribution.
12. I am willing to testify under oath as to the opinions expressed in this report.
13. I may offer additional opinions if additional relevant information becomes available.

#### **D. Compensation**

14. This report was written on a pro-bono basis. I have not been compensated in any way for my time on this matter. Should the Air Force request further analyses from me, the Air Force will be billed at my hourly rate for litigation-related consulting services. My hourly rate for public policy work, which is substantially discounted, is not applicable in this matter.

#### **E. Information Relied Upon**

15. In writing this report, I have relied on the following:

- Academic papers and scholarly writings
- Government documents
- Materials published by the United States Air Force

A list of the materials I have relied upon in writing this report is contained in Appendix C.

#### **F. Summary of Conclusions**

16. The Air Force uses the Impact Analysis for Planning (IMPLAN) economic forecasting model to conduct a large part of its socioeconomic impact analysis. The IMPLAN methodology is a valid technique in some cases; however, the Air Force's application of the IMPLAN model in this case is fundamentally flawed because the Air Force does not take into account the

impact of the F-35A – or, for that matter, the impact of *any* aircraft – when estimating impacts on employment and population (number), housing (number), schools (number), and public services (number). One has to wonder why taxpayer money was used to perform a socioeconomic impact analysis of the F-35A PTC in which the impact of aircraft was not considered for most characteristics.

17. The IMPLAN methodology that the Air Force uses does not allow for negative impacts to the economy. Rather, the Air Force analysis assumes a positive impact and then portends to calculate just how positive. This methodology is seriously flawed, as the PTC is likely to have at least some negative impact on the local economy. It is one thing to conclude that the number of jobs gained will exceed the number of jobs lost. It is another to ignore negative impacts altogether.
18. The economics literature that the Air Force cites is inconsistent with its own IMPACT methodology for assessing socioeconomic impact. The DEIS cites two articles that find an adverse impact on property values. But negative outcomes are impossible under the Air Force's IMPLAN methodology. Either the Air Force assumption of no negative impact is wrong or the literature that the Air Force cites regarding property values is wrong. Both cannot be correct.
19. The Air Force fails to conduct even the most rudimentary assessment of impact on Quality of Life (QoL) and productivity – a survey of individuals who are currently subjected to noise from fighter jets. The hundreds of pages of hypothetical analyses presented in the Air Force report should, at a minimum, be supplemented with a survey of real-world experiences. Further, a serious analysis would include all residents in the surrounding community, not just those subjected to noise levels that, a priori, the Air Force believes are significant.
20. The Air Force assumes that the impact on quality of life is zero below the 65 dB DNL level. A serious analysis would consider impacts below the 65 dB DNL level to account for the reality that the impact of noise operates on a continuum, not a theoretical zero-one construct. Even the most basic economic evaluation would consider some kind of gradual impact. It is simply silly to think that 65 dB DNL is “incompatible with residential use” but that 64.9 dB DNL has no impact.
21. The Air Force fails to conduct any sensitivity analysis with respect to its dB DNL measure. For example, how do the Air Force's conclusions change if, instead of dB DNL, the Air

Force used the number of people subjected to 65 dB DNL at some point in time on a typical day? This kind of sensitivity analysis with respect to key measures is standard practice in economics to determine if the research findings are robust to different specifications. The Air Force's findings with respect to population impacts cannot possibly be considered reliable without a valid sensitivity analysis.

22. The Air Force fails to conduct any kind of real-world comparables analysis. Such an analysis could include places where either the Air Force itself introduced a new fighter jet or it could include places that were recently subjected to a noise disturbance similar to that of the F-35A. Instead, the Air Force relies solely on a hypothetical analysis using its (fundamentally flawed) IMPLAN model. One has to wonder why the Air Force chose to ignore what has actually happened in other places.
23. Finally, and perhaps most importantly, the Air Force has the ability to obtain the gold standard of understanding regarding socioeconomic impact on the Boise community. Specifically, the Air Force could conduct *its own* real-world pre-post experiment *in Boise*. It is perplexing why the Air Force has chosen not to and, why, even now, the Air Force is not proposing this option if the Air Force is sincerely interested in understanding the true socioeconomic impact on the Boise community.
24. The DEIS is fundamentally flawed and grossly insufficient with respect to its socioeconomic analysis. If the Air Force is serious about conducting a socioeconomic analysis, at a minimum, the Air Force will need to address the flaws identified in this report and conduct the additional analyses described below.
25. This report is structured as follows. Section II presents an analysis of the IMPLAN methodology used by the Air Force to assess socioeconomic impact. Section III presents an assessment of the Air Force's empirical analysis. Section IV discusses some implications of my assessment and Section V summarizes the main points of this report.

## **II. ANALYSIS OF THE AIR FORCE IMPLAN MODEL**

26. The methodology that the Air Force uses for assessing socioeconomic impact of the PTC examines "the effects resulting from the incoming personnel, as well as construction

programs under each alternative and F-35A aircraft scenario.”<sup>5</sup> The Air Force explains that “[t]he incoming personnel and construction activities contribute additional income and new demands for products and services into the local economy that would lead to additional population growth, employment growth, greater earnings, and increased demand for public services.”<sup>6</sup>

27. The Air Force then concludes that the relevant research question is to estimate the magnitude of the (positive) ripple effects throughout the economy; that is, to “identify the intensity of the effects” through “economic impact analysis.”<sup>7</sup>

28. The Air Force uses the Impact Analysis for Planning (IMPLAN) economic forecasting method. While this may sound impressive, the model essentially provides a multiplier. Input the number of new construction jobs in the local economy and the IMPLAN model provides the estimated number of additional (indirect and induced) jobs that can be expected. The Air Force explains the process more eloquently: “The economic impact analysis separates effects into three components: direct, indirect, and induced. Direct effects are the additional employment and income generated directly by the expenditures of the incoming personnel. To produce the goods and services demanded by the incoming personnel, business, in turn, may need to purchase additional goods and services from other businesses. The employment and incomes generated by these secondary purchases would result in the indirect effects. Induced effects are the increased household spending generated by the direct and indirect effects. The total effect from the economic impact analysis is the total number of jobs created throughout the ROI [Region of Influence] by the direct, indirect, and induced effects.”<sup>8</sup>

#### **A. The IMPLAN Model Does Not Take into Account the Impact of Aircraft**

29. The IMPLAN methodology is a straightforward technique used in government. As described by the US Department of Agriculture, “IMPLAN provides quick estimates of staffing and

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<sup>5</sup> DEIS, p. 3-34.

<sup>6</sup> DEIS, p. 3-34.

<sup>7</sup> DEIS, p. 3-34.

<sup>8</sup> DEIS, pp. 3-34 and 3-35.



program impacts to state and local economies for strategic planning.”<sup>9</sup> The key component of the IMPLAN model is the multiplier that it generates (i.e., the number that is used to inflate the number of jobs that the researcher inputs to get the number of additional indirect and induced jobs).

30. The assumptions used in calculating this multiplier are crucial. As it turns out, besides Air Force staffing, there is nothing in the DEIS to suggest that the Air Force’s application of the IMPLAN model has anything to do with the F-35A fighter jet per se or, for that matter, anything at all to do with aircraft. To state the obvious, the Air Force’s economic forecasting model should take aircraft into account. Presumably, that is why taxpayer money was used to write the DEIS.
31. The Air Force’s IMPLAN analysis is generic and not geared toward the impact of aircraft. So, what did the Air Force actually estimate? The Air Force merely estimated how many new jobs will be in Boise on the assumption that the Air Force is adding new jobs. One might ask why you need a computer model to do this. Good question.

#### **B. The IMPLAN Model Does Not Allow for Negative Impacts**

32. The economic impact analysis conducted by the Air Force is seriously flawed because the IMPLAN model does not consider the possibility that the PTC could have a negative impact on population and employment (numbers), housing (numbers), schools (numbers), and tax revenue. One would be justified in wondering why. Either it never occurred to the Air Force that negative impacts are a possibility, which then begs the question about why the Air Force bothered to write a DEIS that is several hundred pages long. Or the Air Force understood that negative impacts were possible, but were incapable of accounting for them, which begs the question about how they were able to do such a seemingly detailed analysis of the non-socioeconomic impact (and, further, conclude that it would be minimal). Or the Air Force understood that negative impacts were possible, but simply decided to ignore the possibility. I have no idea. What I do know is that any serious economist would, at a minimum, (1) acknowledge the possibility of negative impacts and (2) attempt to address them. The Air Force does neither.

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<sup>9</sup> US Department of Agriculture, National Resources Conservation Service, “IMPLAN Model/NRCS Economics,” [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/alphabetical/econ/?&cid=nrcs143\\_009748](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/alphabetical/econ/?&cid=nrcs143_009748).

33. In fact, throughout the DEIS, the Air Force makes statements like: “The construction jobs under each scenario would constitute less than 1 percent of the total employment of Ada County and are not likely to generate migration into the county”;<sup>10</sup> “The demand for up to 1,759 housing units, approximately 1.9 percent of the total number of housing units within the city, would not have an adverse impact on the housing market;”<sup>11</sup> and “With the small number of students being added compared with the total enrollment of schools in the city of Boise, it is anticipated that the schools would have the capacity to accept the incoming students without impacting school resources.”<sup>12</sup> So the Air Force seems to be most concerned that the PTC program would be *too* positive for the Boise community. One has to wonder why the Air Force has undertaken so much effort to convince the Boise public of the worth of the PTC if, in fact, the relevant question was just how positive the program will be to Boise.
34. What is most puzzling about the Air Force analysis is that, within the section on socioeconomics, the Air Force explicitly acknowledges that “The FAA and DoD have identified residential use as incompatible with annual noise levels above 65 dB DNL unless special measures are taken to reduce residential interior noise levels.”<sup>13</sup> So the Air Force acknowledges that a portion of the Boise community will be subjected to noise levels that are incompatible with residential use but, yet, such noise will have no negative impact on the population (numbers). According to the Air Force analysis, despite this noise, *not one person* will move out of the area because of the noise. What is more, given that the Air Force’s IMPLAN methodology considers only positive impacts on employment, the Air Force claims that *not one business* will be negatively impacted by this noise.
35. The question that the Air Force should have asked is: what is the *net impact* of the proposed PTC on the socioeconomics of the community? If the Air Force is still at a loss on how to do so, I propose a pre- and post-analysis of regions that have been subjected to something similar. How were businesses in these areas impacted? How were individuals in these areas impacted? This kind of real-world analysis is an obvious way of assessing socioeconomic

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<sup>10</sup> DEIS, p. BO-124

<sup>11</sup> DEIS, p. BO-126.

<sup>12</sup> DEIS, p. BO-126.

<sup>13</sup> DEIS, p. 3-35.

impact. Any worthwhile first-year graduate student in economics would suggest this analysis as a way to assess socioeconomic impact. Again, one has to wonder why the Air Force did not.

36. The Air Force also claims that “Under the basing scenarios, between 2,188 to 2,635 direct, indirect, and induced jobs are anticipated and *could be filled by unemployed persons in Ada County.*” [Emphasis added.] The Air Force has conducted no analysis of the unemployed population in Ada County. If the Air Force were serious about making a statement such as this, the Air Force would examine the skills, education, and training requirements of expected jobs and match this to the characteristics of the unemployed population in Ada County. The Air Force also conducts no analysis of the impacts on local businesses of individuals leaving their existing jobs to go work for the Air Force.

### **C. The IMPLAN Methodology Is Inconsistent with the Literature Cited by the Air Force**

37. As noted above, the IMPLAN model does not take into account the potential negative impacts of noise on socioeconomic outcomes. So, under the Air Force methodology, the only possible impact on properties values would be positive, as more people compete for the existing housing supply in the area. But then the Air Force, inexplicably, discusses negative impacts on property values. “The noise generated by the F-35A could have an adverse impact on property values for those properties that would be newly exposed to noise levels above 65 dB DNL and especially for properties newly exposed to noise levels above 75 dB DNL, which the EPA considers incompatible with residential use.”<sup>14</sup> There are only two logical explanations for having both an IMPLAN analysis that considers only positive socioeconomic impacts and then a statement about negative impact on property values. Either the Air Force assumption of no negative impact is wrong or the literature that the Air Force cites regarding property values is wrong. Both cannot be correct.
38. The Air Force cites two studies, Fidel et al. (1996) and Nelson (2003), both of which show negative impacts.<sup>15</sup> The Air Force’s interpretation of these studies is puzzling. After reviewing Fidel et al. (1996) the Air Force concludes, that “while aircraft noise at these installations may have had minor impacts on property values, it was difficult to quantify that

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<sup>14</sup> DEIS, p. BO-127.

<sup>15</sup> DEIS, p. 3-35.

impact.”<sup>16</sup> But if it is difficult to quantify an impact, how would you know that the impact was minor? Further, the fact that the impact cannot be quantified precisely does not mean that it can be ignored.

39. Regarding Nelson (2003) the Air Force states, “The result of the study supports the idea that the potential for an adverse impact on property values as a result of aircraft noise exists and estimates that the value of a specific property could be discounted between 0.5 and 0.6 percent *per decibel* when compared to a similar property that is not affected by aircraft noise.”<sup>17</sup> [Emphasis added.] This impact is *enormous*. An estimate of this magnitude means that properties subjected to 65 decibels will be discounted between 33 percent and 39 percent ( $33\% = 0.5 * 65$  decibels;  $39\% = 0.6 * 65$  decibels) relative to properties subjected to no noise. The Air Force even states, “Additional data indicate that the discount for property values as a result of noise would be higher for noise levels above 75 dB DNL.”<sup>18</sup> That means reductions in property values for some of more than 40 percent.
40. Even marginal increases in noise will have an impact on property values, according to the Air Force’s interpretation of Nelson (2003). For example, an increase in noise from 44 decibels to 64 decibels (still below the Air Force’s 65 dB DNL threshold) would result in a property discount of between 10 percent and 12 percent ( $10\% = 0.5 * (64 - 44)$ ;  $12\% = 0.6 * (64 - 44)$ ).
41. The Air Force interpretation of Nelson raises another issue. What about properties subjected to noise levels below 65 dB DNL in the vicinity of airfields and below 55 dB DNL in the airspace? According to the Air Force, there is no impact, as these noise levels are “a level protective of the public health and welfare.”<sup>19</sup> But according to the Air Force’s interpretation of Nelson (2003), certain people – like those who previously lived without noise and who would be subjected to 50 dB DNL as a result of the F-35A PTC – can expect a 25 percent reduction in the value of their home. No impact?

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<sup>16</sup> DEIS, p. 3-35.

<sup>17</sup> DEIS, pp. 3-35, 3-36.

<sup>18</sup> DEIS, p. 3-36.

<sup>19</sup> DEIS, p. 3-35.

42. The Fidel et al. (1996) article is more than 15 years old. The Nelson (2003) article is nearly ten years old. The Air Force could not find *one* relevant study that was conducted within nearly a decade?
43. Finally, as noted above, the Air Force believes that property values for some will decline by more than 40 percent. Also noted above, the Air Force asserts no negative impact on the number of people living in Boise as a result of the proposed PTC. So property values will decline by up to 40 percent because of the impact of noise, but no one will move out of this area to escape such noise? This is nonsense.

### **III. ASSESSMENT OF AIR FORCE SOCIOECONOMIC IMPACT ANALYSIS**

44. This section presents an assessment of the Air Force's empirical analysis of the socioeconomic impact of the PTC on the Boise community, which the Air Force defines as Ada County and the city of Boise.<sup>20</sup> The Air Force socioeconomic analysis covers employment and population, housing, schools, public services (including claims regarding projected increases in tax revenue), noise, and property values. The Air Force's socioeconomic impact analysis with respect to employment, population, housing, schools, and public services is based on the IMPLAN methodology discussed above. In doing so, the Air Force starts with existing conditions (e.g., current population) and estimates the effect of adding people and jobs to the baseline condition. Noise and property values are considered independently from the other socioeconomic considerations. That is, noise and property values are not taken into account when estimating impacts on employment and population, housing, schools, and public services. Further, the impact on property values is noticeably absent from the summary tables of potential socioeconomic impact under various basing scenarios.<sup>21</sup>

#### **A. The Air Force Analysis Inexplicably Separates Noise and Property Values from Other Socioeconomic Considerations**

45. The Air Force applies its IMPLAN model to estimate impacts to employment and population, housing (number of units), schools, and public services. The Air Force then discusses,

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<sup>20</sup> DEIS, p. BO-122.

<sup>21</sup> DEIS, Table BO 3.11-3, pp. BO-125-6 and Table BO 3.11-4, p. BO-127.

almost as an aside, the estimated number of residents impacted by noise and the possibility of a negative impact on property values. The Air Force, therefore, claims that the number of residents impacted by noise has no impact on employment and population. This claim is highly suspect – if noise levels are considered to be “incompatible with residential use”<sup>22</sup> for some residents as a direct result of the F-35A PTC, how could one possibly assume no impact on the population (numbers)?

## **B. The Air Force Ignores Impacts on Quality of Life**

46. The Air Force fails to conduct even the most rudimentary assessment of the impact on Quality of Life (QoL) and productivity – a survey of individuals who are currently subjected to noise from fighter jets. The socioeconomic impact analysis presented in the Air Force report is almost entirely hypothetical, as if real-world outcomes did not exist. In fact, not only do real-world examples exist, they are plentiful. Moreover, it is very easy to obtain data on quality of life – you simply ask people. Individual surveys are a very basic part of research. An entire industry focuses on surveys, as most anyone with a telephone can attest.
47. Examples of relevant questions to ask residents in areas that already experience noise from jet engines that exceed 65 dB DNL are as follows. “Compared to your living situation prior to the jet engine noise, has your quality of life been enhanced, has it remained the same, or has it been adversely impacted?” “On a scale of one to ten, where one is no impact and ten is extreme impact, how would you rate the impact of jet engine noise on your quality of life?” “On a scale of one to ten, where one is not at all valuable and ten is extremely valuable, how valuable would it be to you to eliminate the jet engine noise that you currently live with?” “In the last week, how many times did you notice jet engine noise?” “[For those who responded at least once to the previous question] On a scale of one to ten, where one is none and ten is completely, to what extent did these episodes interrupt what you were doing?” “Would you say that jet engine noise has a negative impact on your quality of life? Yes or No.”
48. An important note for a serious analysis is that these questions should be asked of all residents in the area, not just those subjected to noise levels that, a priori, the Air Force believes are significant.

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<sup>22</sup> DEIS, p. BO-127.

49. If the Air Force was serious about the impact of noise on the Boise community the Air Force would simply ask people who currently deal with such noise levels about their experiences. One has to wonder why, as part of the DEIS, the Air Force has not talked to anyone who has experienced noise levels similar to those expected from the F-35A.

### **C. The Air Force Ignores Impacts on Productivity**

50. The Air Force claims that the F-35A PTC will result in increased earnings,<sup>23</sup> yet offers no analysis to support this assertion. In contrast, there is good reason to think that the opposite will happen because: (1) economists generally agree that wages are related to productivity<sup>24</sup> and (2) noise can affect productivity.<sup>25</sup> The Air Force considers neither. The survey described above could be easily supplemented to ask individuals about the impact of noise on their productivity. For example, “In the last week, how many times did you notice jet engine noise while you were at work?” “[For those who responded at least once to the previous question] On a scale of one to ten, where one is none and ten is a lot, what impact did these episodes have on your ability to conduct your work efficiently?” For those who responded that they noticed jet engine noise, one could even ask, “Over the past week, how many minutes or hours of work do you feel you have lost as a result of being distracted by the jet engine noise?”

51. While there may be questions about the reliability of data concerning the magnitude of any impact on productivity, one would certainly be able to ascertain from a survey if there was no impact. People would just say so.

52. Again, one has to wonder why, as part of the DEIS, the Air Force has not talked to anyone who has experienced noise levels similar to those expected from the F-35A.

### **D. The Air Force Erroneously Assumes No Harm for Noise below 65 dB DNL**

53. The Air Force assumes that the socioeconomic impact on quality of life is zero below the 65 dB DNL level. Specifically, the Air Force states, “The FAA and DoD have identified

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<sup>23</sup> DEIS, p. 3-34. “The incoming personnel and construction activities contribute additional income and new demands for products and services into the local economy that would lead to additional population growth, employment growth, *greater earnings*, and increased demand for public services.” [Emphasis added.]

<sup>24</sup> Mankiw (2008); Mankiw (2006).

<sup>25</sup> DEIS, p. Novotney, A. 2011. “Silence Please! Psychologists are increasing awareness of the harmful effects noise has on cognition and health,” *Monitor on Psychology*, 42(7).

residential use as incompatible with annual noise levels above 65 dB DNL unless special measures are taken to reduce residential interior noise levels. Residential use is identified as incompatible regardless of noise attenuation at noise levels greater than 75 dB DNL.”<sup>26</sup>

Further, the Air Force states, “Socioeconomic analysis of noise generated by the F-35A in the vicinity of the main airfield and auxiliary airfields and beneath the airspace focuses on noise levels greater than 65 dB DNL in the vicinity of airfields and greater than 55 dB DNL in the airspace. The EPA has identified a dB DNL of 55 dB to be a level protective of the public health and welfare. This represents a threshold below which adverse noise effects are generally not expected.”<sup>27</sup>

54. The last sentence of the previous paragraph means that the Air Force believes that the socioeconomic impact of any noise from the F-35A below 65 dB DNL near airfields and 55 dB DNL otherwise is *zero*. The absurdity of such a conclusion is shown in Figure 1. No impact exists when noise is less than 65 dB DNL, but then – suddenly – the impact of noise goes from being non-existent to reaching the point where it is not suitable for residential use. Even the most basic economic evaluation would consider some kind of gradual impact. It is simply silly to think that 65 dB DNL is incompatible with residential use<sup>28</sup> but that 64.9 dB DNL has no impact.
55. If the Air Force were serious about socioeconomic impact, the survey mentioned above would be asked of people who are subjected to jet noise below 65 dB DNL to validate the Air Force’s conclusion that the impact of noise is nonexistent up until the specified threshold and then immediately becomes unsuitable for residential use.

#### **E. The Air Force Fails to Account for Variation about the Mean**

56. Using an *average* day-night noise level, like the Air Force dB DNL measure, conceals more than it reveals. As shown in Figure 2, both lines are consistent with dB DNLs of 20. However, in one case, the resident experiences 75 decibels of noise for hour-long periods throughout the day.<sup>29</sup> If a resident were to experience this level on average daily, the Air

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<sup>26</sup> DEIS, p. 3-35.

<sup>27</sup> DEIS, p. 3-35.

<sup>28</sup> DEIS, p. 3-35.

<sup>29</sup> The peaks in Figure 2 can be thought of as decibel hourly average sound levels, based on the same methodology the Air Force uses for calculating dB DNL, only for a one-hour period as opposed to a 24-hour period.



Force would consider their property “incompatible [with residential use] regardless of noise attenuation.”<sup>30</sup> But because the noise is zero at times, the Air Force claims *no* impact. Moreover, the Air Force, for the purposes of its socioeconomic impact analysis, considers this situation no different from someone who experiences no noise from jet aircraft – ever. The Air Force fails to conduct any kind of validation for this assertion. If the Air Force were serious about its analysis, it would conduct a survey of individuals who experience wide variation in noise, such as that illustrated in Figure 2, and see if these people are indifferent between their current situation and a situation with no noise.

57. The Air Force fails to conduct any sensitivity analysis with respect to its estimate of the number of residents affected by noise levels.<sup>31</sup> For example, how does the number of residents impacted change if, instead of dB DNL, the Air Force estimated the number of people subjected to 75 dB at some point in time on a typical day? How does the number of residents impacted change if, instead of dB DNL, the Air Force estimated the number of people subjected to 65 dB at some point in time on a typical day? This kind of sensitivity analysis is standard practice in economics to determine if the research findings are robust to different specifications. If the research findings shift substantially with minor changes to model specification, such as using dB DNL versus intermittent exposure to extreme noise, then the conclusions should be considered suspect. The Air Force’s findings with respect to population impacts could not possibly be considered reliable without a valid sensitivity analysis.

#### **F. The Air Force Fails to Conduct an Analysis of Relevant Real-World Benchmarks**

58. The Air Force fails to conduct any kind of real-world analysis of impacts to cities that have already been subjected to something like the proposed PTC for Boise AGS. Such an analysis is common in economics and is fairly straightforward to conduct, mainly because the relevant data is widely available. The U.S. Census Bureau and the U.S. Bureau of Labor Statistics publish very detailed historical socioeconomic information about cities, counties, states, and regions. These data can be used to examine changes over time with respect to a variety of economic characteristics.

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<sup>30</sup> DEIS, p. 3-35.

<sup>31</sup> DEIS, Table BO 3.11-4, p. BO-127.

59. Further, an analysis of existing locations subject to aircraft noise can be done two ways, each of which would shed light on the possible impact to Boise. The first way is to examine socioeconomic data from cities that experienced a change such as the proposed PTC and compare these data to analogous data from some other comparable city. A second way to conduct the analysis is to use information prior to the intervention as a benchmark. That is, for the city to serve as its own “control,” obviously taking into account other changes over time using multivariate regression analysis. Each method is valuable and each method is common in the field of economics.
60. The Air Force’s complete reliance on hypothetical socioeconomic outcomes for Boise without also exploring real-world experiences is a very serious shortcoming. One has to wonder why taxpayer money is used to provide rich, publicly-available data when our own government decides to ignore such data.
61. Finally, and perhaps most importantly, the Air Force could conduct *its own* real-world pre-post analysis *in Boise*. The pre period is now. The Air Force could conduct a survey and ask the citizens of Boise about their current expectations about relocating, the extent to which noise impacts their everyday life, their enjoyment of their home, and a host of other relevant questions. Once baseline data is recorded, the Air Force could introduce the F-35A on a trial basis, say, for one or two weeks. After the trial period (and perhaps even during) the Air Force could conduct a follow-up survey that asks people in Boise about the impact of the F-35A. This survey could include many of the same questions that were asked during the baseline period in order to assess changes in individual responses. An entire field within economics, called experimental economics, specializes in controlled experiments such as this. If the Air Force were sincere about understanding the true socioeconomic impact on the F-35A on the Boise community, the Air Force would conduct *its own* real-world pre-post experiment *in Boise*.

#### **IV. IMPLICATIONS**

62. If the Air Force is serious about conducting an analysis of socioeconomic impact, such an analysis, at a minimum, would include: (1) an IMPLAN model that takes into account the impact of aircraft; (2) an IMPLAN model that estimates net effects; (3) a survey of individuals currently living in areas with extreme noise; (4) an evaluation of the impact of

noise below 65 dB DNL; (5) a sensitivity analysis with respect to the day-night average measure of noise; and (6) a comparative analysis of socioeconomic impact based on areas where extreme noise was introduced. I also propose that the Air Force conduct its own real-world pre-post experiment in Boise, as described in this report.

63. Given the severe flaws that I have identified in the DEIS, as outlined in this report, the Air Force's socioeconomic analysis is not reliable or informative in any way. Assuming the Air Force is serious about assessing socioeconomic impact the Air Force must revise and supplement its current analysis.
64. Finally, based on the quality of the work related to socioeconomic impact in the DEIS, I think it is crucial for other independent experts to review all aspects of this document. At a minimum, the Air Force should consult with independent experts in the fields of biology (impact of noise pollution and air pollution on wildlife), psychology (impact on of noise pollution on human development and cognitive function), and physics (accuracy of fuel consumption estimates and environmental harm associated with air pollution), and possibly others.

## V. CONCLUSION

65. The socioeconomic analysis contained in the Air Force's Draft F-35A Training Basing Environmental Impact Statement is fundamentally flawed and grossly insufficient. The DEIS cannot possibly be considered reliable or informative in any way with respect to the true socioeconomic impact of the F-35A Pilot Training Center on the Boise community.

Respectfully Submitted,



Kevin E. Cahill, PhD

Figure 1

Air Force Assumption Regarding the Impact of Noise  
by Decibel Day-Night Average Sound Level (dB DNL)

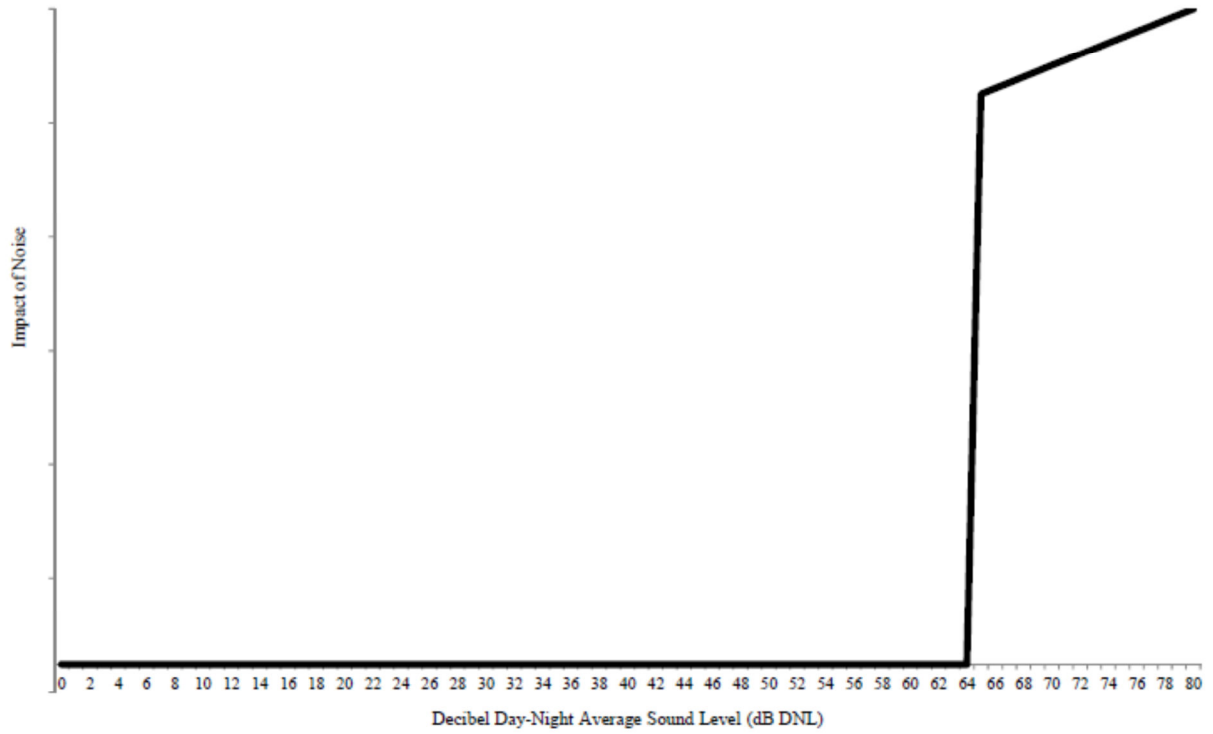
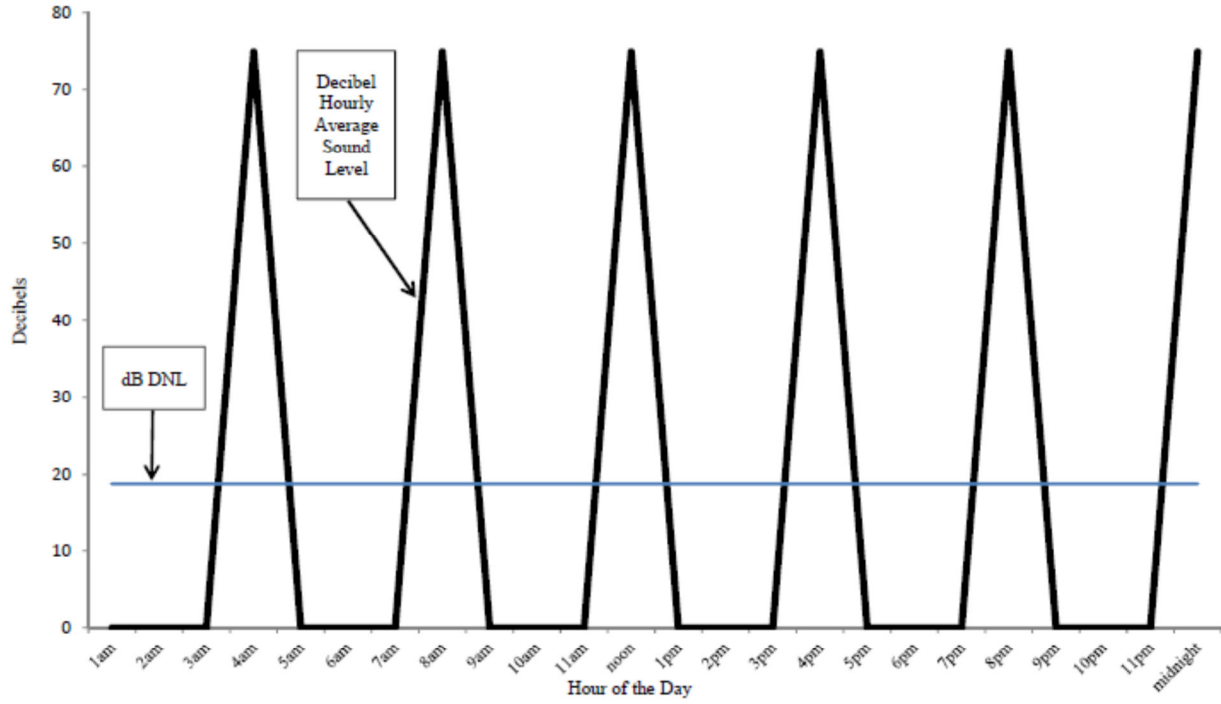


Figure 2

Illustration of Hypothetical Decibel Hourly Average Sound Level and Decibel Day-Night Average Sound Level (dB DNL)



## VI. APPENDIX A: Curriculum Vitae

### CURRICULUM VITAE

KEVIN E. CAHILL

XXXXXXXXXXXXXX  
Boise, Idaho 83703  
e-mail: cahillkc@bc.edu

#### Education

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Ph.D. Economics, Boston College, Chestnut Hill, MA, 2000  
M.A. Economics, Boston College, Chestnut Hill, MA, 1997  
B.A. Mathematics and Economics (with honors), Rutgers College, New Brunswick, NJ, 1993

#### Professional Experience

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2005 – present	Sloan Center on Aging and Work at Boston College: Research Economist
2005 – 2010	Analysis Group, Inc.: Associate (2005 – 2008); Manager (2009 – 2010)
2004 – 2005	Tinari Economics Group: Economist and Expert Witness
2003	Center for Retirement Research at Boston College: Associate Director for Research
2000 – 2002	Abt Associates, Inc.: Associate

#### Papers and Publications

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Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. 2012. “The Relationship between Work Decisions and Location Later in Life.” Papers and Proceedings of the NAFE Sessions at the AEA/ASSA 2012 Annual Meetings.

Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. Forthcoming. “Bridge Employment.” *The Oxford Handbook of Retirement*. New York, NY: Oxford University Press.

Cahill, Kevin E. 2011. “Should Older Workers Step Aside?” *Huffington Post Blog* (featured article) (August) and Sloan Center on Aging & Work, *AGenda* (December).

Quinn, Joseph F., Kevin E. Cahill, and Michael D. Giandrea. 2011. “Early Retirement: The Dawn of a New Era?” TIAA-CREF Institute *Policy Brief* (July).

Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. 2011. “Reentering the Labor Force after Retirement.” *Monthly Labor Review*, 134(6), 34-42 (June).

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Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. 2010. “Employment Patterns and Determinants among Older Individuals with a History of Short-Duration Jobs.” U.S. Bureau of Labor Statistics Working Paper, 440 (August).

Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. 2010. “The Role of Re-entry in the Retirement Process.” U.S. Bureau of Labor Statistics Working Paper, 439 (June).

Jaff, Michael R., Kevin E. Cahill, Andrew P. Yu, Howard G. Birnbaum, and Luella M. Engelhart. 2010. “Clinical Outcomes and Medical Care Costs among Medicare Beneficiaries Receiving Therapy for Peripheral Arterial Disease.” *Annals of Vascular Surgery*, 24(5), 577-587 (July).

- Cahill, Kevin E., Michael D. Giandrea, and Melissa Brown. 2010. "Stepping Stones and Bridge Jobs: Determinants and Outcomes." Papers and Proceedings of the NAFE Sessions at the AEA/ASSA 2010 Annual Meetings.
- Giandrea, Michael D., Kevin E. Cahill, and Joseph F. Quinn. 2009. "Bridge Jobs: A Comparison across Cohorts." *Research on Aging*, 31(5), 549-576.
- Duh, Mei Sheng, Kevin E. Cahill, Pierre Emmanuel Paradis, Pierre Y. Cremieux, and Paul E. Greenberg. 2009. "The Economic Implications of Generic Substitution of Antiepileptic Drugs: A Review of Recent Evidence." *Expert Opinion on Pharmacotherapy*, 10(14), 2317-2328.
- Wu, Eric Q., Pankaj A. Patel, Reema R. Mody, Andrew P. Yu, Kevin E. Cahill, Jackson Tang, and Eswar Krishnan. 2009. "Frequency, Risk, and Cost of Gout-related Episodes Among the Elderly: Does Serum Uric Acid Level Matter?" *The Journal of Rheumatology*, 36(5), 1032-1040.
- Giandrea, Michael D., Kevin E. Cahill, and Joseph F. Quinn. 2008. "Self Employment as a Step in the Retirement Process." Sloan Center on Aging & Work *Issue Brief*, No. 15 (September).
- Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. 2008. "A Micro-Level Analysis of Recent Increases in Labor Force Participation among Older Workers." Center for Retirement Research at Boston College Working Paper, 8 (February).
- Giandrea, Michael D., Kevin E. Cahill, and Joseph F. Quinn. 2008. "Self Employment Transitions among Older Workers with Career Jobs." U.S. Bureau of Labor Statistics Working Paper, 418 (May).
- Lee, Lauren J., Andrew P. Yu, Kevin E. Cahill, Alan K. Oglesby, Jackson Tang, Ying Qiu, and Howard G. Birnbaum. 2008. "Direct and Indirect Costs among Employees with Diabetic Retinopathy in the United States," *Current Medical Research and Opinion*, 24(5), 1549-1559.
- Wu, Eric Q., Pankaj A. Patel, Andrew P. Yu, Reema R. Mody, Kevin E. Cahill, Jackson Tang, and Eswar Krishnan. 2008. "Disease-related and Total Health Care Costs of Elderly Patients with Gout," *Journal of Managed Care Pharmacy*, 14(2), 164-175.
- Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. 2007. "Down Shifting: The Role of Bridge Jobs After Career Employment." Sloan Center on Aging & Work *Issue Brief*, No. 6 (April).
- Giandrea, Michael D., Kevin E. Cahill, and Joseph F. Quinn. 2007. "An Update on Bridge Jobs: The HRS War Babies." U.S. Bureau of Labor Statistics Working Paper, 407 (May).
- Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. 2006. "Retirement Patterns from Career Employment." *The Gerontologist*, 46(4), 514-523.
- Tinari, Frank D., Kevin E. Cahill, and Elias Grivoyannis. 2006. "Did the 9/11 Victim Compensation Fund Accurately Assess Economic Losses?" *Topics in Economic Analysis and Policy*, Vol. 6, Issue 1.
- Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn. 2005. "Are Traditional Retirements a Thing of the Past? Recent Evidence on Retirement Patterns and Bridge Jobs." U.S. Bureau of Labor Statistics Working Paper, 384 (September).
- Tinari, Frank D., Kevin E. Cahill, and LeeAnn M. Pounds. 2005. "The Effects of a Gender-Neutral Life Expectancy Table in New Jersey Litigation." Tinari Economics Group Working Paper.
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Tinari, Frank D., and Kevin E. Cahill. 2004. "A Note on a Perverse Result under New York State's Rule 50-B: The Case of Pensions." Tinari Economics Group Working Paper.

Cahill, Kevin E., and Robert L. Clark. 2004. "Economics of Aging." *The Encyclopedia of Aging*, 4<sup>th</sup> Edition, Springer Publishing Company, New York, NY.

Cahill, Kevin E., and Alicia H. Munnell. 2004. "The Impact of Raising the Earliest Eligibility Age on Social Security-Dependent Americans." Research funded by the Russell Sage Foundation (unpublished manuscript).

Munnell, Alicia H., Kevin E. Cahill, Andrew D. Eschtruth, and Steven A. Sass. 2004. "The Graying of Massachusetts: Aging, the New Rules of Retirement, and the Changing Workforce." The Massachusetts Institute for a New Commonwealth (MassINC).

Munnell, Alicia H., Kevin B. Meme, Natalia A. Jivan, and Kevin E. Cahill. 2004. "Should We Raise Social Security's Earliest Eligibility Age?" Center for Retirement Research *Issue in Brief*, No. 18 (June).

Cahill, Kevin E., and Sheila Campbell. 2004. "Basic Investment Theory Explained." Center for Retirement Research *Just the Facts*, No. 9 (January).

Cahill, Kevin E., and Mauricio Soto. 2003. "How Do Cash Balance Plans Affect the Pension Landscape?" Center for Retirement Research *Issue in Brief*, No. 14 (December).

Munnell, Alicia H., Kevin E. Cahill, and Natalia A. Jivan. 2003. "How Has the Shift to 401(k)s Affected the Retirement Age?" Center for Retirement Research *Issue in Brief*, No. 13 (September).

Marshall, Nancy L., Cindy L. Creps, Nancy R. Burstein, Kevin E. Cahill, Wendy W. Robeson, Sue Y. Wang, Nancy Keefe, Jennifer Schimmenti, and Frederic B. Glantz. 2003. "Massachusetts Family Child Care Today: A Report on the Findings from the Massachusetts Cost and Quality Study." Wellesley Centers for Women, Wellesley, MA.

"401(k) Plans and Retirement Saving: Lessons for Personal Accounts." 2002. Summary document of a presentation by William G. Gale and James M. Poterba prepared for the Social Security Administration (November).

Beecroft, Erik, Kevin E. Cahill and Barbara D. Goodson, 2002. "The Impacts of Welfare Reform on Children: The Indiana Welfare Reform Evaluation." Abt Associates Inc. (December).

Burstein, Nancy, Jean I. Layzer, and Kevin E. Cahill. 2001. "National Study of Child Care for Low-Income Families: Patterns of Child Care Use Among Low-Income Families." Abt Associates Inc. (August).

Wrobel, Marian V., and Kevin E. Cahill. 2001. "An Evaluation of the Choosing Health Program." Abt Associates Inc. (April).

Cahill, Kevin E., 2000. "Heterogeneity in the Retirement Process: Patterns and Determinants of Labor Force Withdrawal among Individuals with Low-Wage and Short-Duration Jobs." Boston College Doctoral Dissertation.

Quinn, Joseph F., Richard V. Burkhauser, Kevin E. Cahill, and Robert Weathers. 1998. "Microeconomic Analysis of the Retirement Decision: United States." The OECD Economics Department Working Paper No. 203, Paris.

## **Professional Activities, Honors and Awards**

---

American Economics Association, member, 2002 – present.

National Association of Forensic Economists, member, 2004 – present.

Ad hoc referee, *The Gerontologist*, 2002 – present.

Ad hoc referee, *The Journal of Forensic Economics*, 2005 – present.

Reviewer of grant proposals, Sandell Grant Program, 2002 – 2003.



Doctoral Fellowship, Social Security Administration, Center for Retirement Research, 1999.  
Teaching Excellence Award, Boston College Graduate School of Arts and Sciences, 1998.  
Michael Mann Summer Dissertation Award, Boston College Department of Economics, 1997.  
Graduate Student Fellowship, Boston College Department of Economics, 1995 – 1998.  
Henry Rutgers Scholar, Rutgers College, Department of Economics, 1993.

## **Presentations and Conferences Attended**

---

“The Relationship between Work Decisions and Location Later in Life.” Presentation at the 2012 Annual Meeting of the Allied Social Science Associations, Chicago, IL, January 7, 2012.

“Building Your Bridge to Retirement’?” Invited guest on AARP’s “Inside E Street” for Public Television, December 7, 2011.

“How Does Occupational Status Impact Bridge Job Prevalence.” Presentation at the 2011 Annual Meeting of the Allied Social Science Associations, Denver, CO, January 8, 2011.

“Stepping Stones and Bridge Jobs: Determinants and Outcomes.” Presentation at the 2010 Annual Meeting of the Allied Social Science Associations, Atlanta, GA, January 4, 2010.

“Adapting U.S. Retirement Behavior.” Discussant at the 2009 Annual Meeting of the Eastern Economic Association, New York, NY, February 27, 2009.

“Retirement Patterns and Determinants among Individuals with a History of Short-Duration Jobs.” Presentation at the 2009 Annual Meeting of the Allied Social Science Associations, San Francisco, CA, January 4, 2009.

“The Role of Bridge Jobs in the Retirement Process.” Presentation at The Ann Richards Invitational Roundtable on Gender and the Media, Older Workers: Benefits and Obstacles for Women’s and Men’s Continued Employment, Brandeis University, Waltham, MA, October 24, 2008.

“The Role of Re-entry in the Retirement Process.” Presentation at the 2008 Annual Meeting of the Allied Social Science Associations, New Orleans, LA, January 4, 2008.

“A Micro-level Analysis of Recent Increases in Labor Force Participation among Older Workers.” Presentation at the Korea Labor Institute Conference on Panel Data, Seoul, Korea, October 25, 2007.

“Bridge Jobs and Retiree Well-being.” Presentation at the 2007 Annual Meeting of the Western Economic Association, Seattle, WA, July 2, 2007.

“Self Employment Transitions among Older Workers with Career Jobs,” Presentation at the 2007 Annual Meeting of the Eastern Economic Association, New York, NY, February 24, 2007.

“A Micro-level Analysis of Recent Increases in Labor Force Participation among Older Workers.” Presentation at the 2006 Annual Meeting of the Western Economic Association, San Diego, CA, July 2, 2006.

“Retirement Patterns and Bridge Jobs among the HRS War Babies.” Presentation at the 2005 Annual Meeting of the Western Economic Association, San Francisco, CA, July 7, 2005.

SEAK Annual National Expert Witness Conference, Hyannis, MA, June 16-17, 2005.

“The Social Security Debate: Why Should I Care about Reforms?” Invited guest for a panel discussion on Social Security Personal Accounts, Drew University Economics Department, Madison, NJ, April 12, 2005.

“The Role of the Economist in Assessing Damages for Defendants.” Presentation at Liberty Mutual Group, Marlton, NJ, March 18, 2005.

“Was the 9/11 Victim Compensation Fund a Success? A Forensic Economist’s View.” Presentation at the 2005 Annual Meeting of the Eastern Economic Association, New York, NY, March 5, 2005.

“Recent Evidence on Retirement Patterns and Bridge Jobs.” Presentation at the 2005 Annual Meeting of the Eastern Economic Association, New York, NY, March 4, 2005.

“A Retrospective Examination of the 9/11 Victim Compensation Fund Awards: Calculated vs. Actual Economic Loss Awards.” Presentation at the 2005 Annual Meeting of the Allied Social Science Associations: Expanding the Frontiers of Economics, Philadelphia, PA, January 8, 2005.

“Are Traditional Retirements a Thing of the Past?” Presentation at the U.S. Bureau of Labor Statistics, Washington, DC, December 16, 2004.

“How Well Prepared Are Massachusetts Families for Retirement?” Presentation at the New England Study Group, Federal Reserve Bank of Boston, Boston, MA, October 12, 2004.

Annual Meeting of the Allied Social Science Associations, San Diego, CA, January 3-5, 2004.

“Securing Retirement Income for Tomorrow’s Retirees.” Session Chair for the Sandell Grant Program Presentations at the Fifth Annual Conference of the Social Security Retirement Research Consortium, Washington, DC, May 15-16, 2003.

“Retirees Back at Work.” Invited guest for “On Point,” *National Public Radio*. March 12, 2003.

“The Changing Retirement Income Landscape.” Presentation at the Ethics and Aging Seminar Series at Boston College, Chestnut Hill, MA, February 3, 2003.

“Social Security Reform: The Relationship between Today’s Program and Tomorrow’s.” Discussant at the 55th Annual Scientific Meeting of the Gerontological Society of America, Boston, MA, November 26th, 2002.

“Patterns of Child Care Use among Low-Income Families.” Presentation at the National Association for Welfare Research and Statistics (NAWRS) 42nd Annual Workshop: Research, Reauthorization, and Beyond, Albuquerque, NM, August 25-28, 2002.

Annual Meeting of the Allied Social Science Associations, Boston, MA, January 7-9, 2000.

“The Outlook for Retirement Income.” Second Annual Conference of the Social Security Retirement Research Consortium, Washington, DC, May 17-18, 2000.

“New Developments in Retirement Research.” First Annual Joint Conference of the Social Security Retirement Research Consortium, Washington, DC, May 20-21, 1999.

“AHEAD (Asset and Health Dynamics Among the Oldest Old) Summer Workshop.” Survey Research Center, The University of Michigan, Ann Arbor, MI, Summer 1997.

“GSOEP-PSID Summer Workshop.” Center for Policy Research, Syracuse University, Syracuse, NY, Summer 1997.

## Conference Posters

---

Wu E, Cahill KE, Bieri C, Ben-Hamadi R, Yu AP, Erder MH, “Comparison of Hospitalization Use and Health Care Costs of Elderly Major Depressive Disorder (MDD) Patients Treated with Escitalopram, Generic SSRIs, and

SNRIs,” International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 14<sup>th</sup> Annual International Meeting, May 16-20, 2009.

Cahill, KE, Giandrea, MD, Quinn, JF, “Retirement Behavior among Individuals with Erratic Work Histories,” Gerontological Society of America (GSA) 2008 Annual Meetings, November 21-25, 2008.

Jaff MR, Engelhart L, Rosen E, Yu AP, Cahill KE, “Clinical and Economic Outcomes among U.S. Medicare Beneficiaries with Lower Extremity Peripheral Arterial Disease (PAD),” International Symposium on Endovascular Therapy (ISET), January 20-24, 2008.

Giandrea MD, Cahill KE, Quinn JF, “Self Employment Transitions among Older Workers with Career Jobs,” Gerontological Society of America (GSA) 2007 Annual Meetings, November 16-20, 2007.

Lee LJ, Yu AP, Cahill KE, Birnbaum HG, Oglesby AK, Tang J, Qiu Y, “Direct and Indirect Costs among Employees with Diabetic Retinopathy,” American Diabetes Association (ADA) 67th Scientific Sessions, June 22-26, 2007.

Yu AP, Cahill KE, Birnbaum HG, Lee LJ, Oglesby AK, Tang J, Qiu, Y, “Direct and Indirect Costs Associated with Photocoagulation and Vitrectomy among Employees with Diabetic Retinopathy,” International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 12th International Meeting, May 19-23, 2007.

Wu E, Patel P, Krishnan E, Yu AP, Cahill KE, Tang J, Mody R, “Healthcare Cost of Gout in an Elderly Population: A Claims Database Analysis,” American Geriatrics Society (AGS) 2007 Annual Scientific Meeting, May 2-6, 2007.

Wu E, Mody R, Krishnan E, Yu AP, Cahill KE, Tang J, Patel P, “Tighter Control of Serum Uric Acid in Gout is Associated with Lower Morbidity and Health Care Costs,” American College of Rheumatology (ACR) Annual Scientific Meeting, November 10-15, 2006.

## **Trial and Deposition Testimony**

---

Council on American Islamic Relations – New Jersey, Inc., et al. vs. Bergman Real Estate Group, et al., business damages proceeding, Essex County, New Jersey, opinion as to plaintiff’s lost fundraising revenue, testimony taken in deposition, September 21, 2005.

Garfinkel vs. Morristown Obstetrics and Gynecology Associates, et. al., Hon. Stephen F. Smith, Morris County, New Jersey, opinion as to defendants’ lost profits, testimony taken in trial, June 23, 2005.

Edwards vs. City of New York, wrongful termination proceeding, Hon. Fernando Tapia, New York City Civil Court, Bronx County, New York, opinion as to the loss of earnings, fringe benefits, and pension benefits, testimony taken in trial, June 1, 2005.

Allen vs. Euromarket Designs, Inc., wrongful termination proceeding, Hon. Stephen J. Burnstein, Essex County, New Jersey, opinion as to the loss of earnings, testimony taken in trial, April 20, 2005.

Ali vs. Cervelli, personal injury proceeding, Hon. Robert P. Contillo, Bergen County, New Jersey, opinion as to the loss of income from the family business and the loss of household services, testimony taken in trial, April 13-14, 2005.

Peskin vs. AT&T Corporation, wrongful termination proceeding, Somerset County, New Jersey, opinion as to the loss of earnings, testimony taken in deposition, April 8, 2005.

Garfinkel vs. Morristown Obstetrics and Gynecology Associates, et al., wrongful termination proceeding, Morris County, New Jersey, opinion as to defendants’ lost profits, testimony taken in deposition, March 16, 2005.

Packard vs. The Bessemer Group, wrongful termination proceeding, Middlesex County, New Jersey, opinion as to the loss of earnings and pension benefits, testimony taken in deposition, February 17, 2005.

Durant vs. The Associates, business damages proceeding, Hon. Nicholas J. Stroumtsos, Jr., Middlesex County Superior Court, New Jersey, opinion as to the loss of incremental profit, testimony taken in trial, December 15, 2004.

Durant vs. The Associates, business damages proceeding, Middlesex County, New Jersey, opinion as to the loss of incremental profit, testimony taken in deposition, November 22, 2004.

Luisi vs. Luisi, divorce proceeding, Hon. Rachel A. Adams, Richmond County Supreme Court, New York, opinion as to the value of enhanced earnings capacity, testimony taken in trial, November 11, 2004.

## VII. APPENDIX B: Boise Guardian Article

### F-35 Opponent Questions Air Force Report

February 17, 2012

*This is a GUARDIAN guest opinion*

**By Kevin E. Cahill, PhD**

Is the Air Force being honest with Boise?

The United States Air Force is proposing Boise's Gowen Field as a possible Pilot Training Center and base for F-35A fighter Jets. The Air Force has just released a draft Environmental Review (Environmental Impact Statement or EIS) which concluded the impact on Boise and the Treasure Valley would be minimal, affecting 3,000 to 10,000 residents only. The study even purports the F-35A program would result in 2,000+ jobs in our area. If this sounds ludicrous to you, that's because it is.

Let's start with the economy. The Air Force states the new F-35A fighter jet program will result in "between 2,188 and 2,635 direct, indirect, and induced jobs." That may be true in the sense the Air Force will hire this many people to support the program itself, plus some residual effect. But the relevant number is the net impact on jobs. That is, the number of jobs created less the number of jobs lost. The Air Force "analysis" does not even consider this possibility. That's how the Air Force claims 2,000+ jobs will be created.

But just think of one example – tourism. Only a fool would think that the outdoor experience here in Boise – our river, our foothills, and our mountains – will be unaffected by the noise from F-35A fighter jets. As economists would put it, the demand for outdoor activities around Boise would be reduced. That means fewer dollars for our area's camping supply stores, our restaurants, and just about everything else. And that means fewer jobs. With our local unemployment rate still well above 8 percent, we can't afford to lose jobs, especially private sector jobs. The deeper impact on our economy, though, comes from out of state. Folks choosing to come to southwestern Idaho for a visit will likely stop doing so. Why choose noisy Boise when you can have peace and quiet in Utah? Worse, why would you choose to live in noisy Boise if you can live in peaceful Arizona? Think of what that does to our housing values.

The next big impact is the widespread impact on children's learning and on lost productivity. The cover story of the July/August Issue of *Monitor on Psychology*, published by the American Psychological Association, was devoted to the impacts of noise pollution. As any parent knows, distractions are, well, distractions. Anything that breaks a child's attention span makes learning harder. So, not surprisingly, the best psychologists in the country and internationally found airplane noise resulted in a statistically significant negative impact on children's learning. It applies to adults, too. The Air Force has an absurd criterion for saying noise is problematic – 65 decibel (dB) day-night average sound level (DNL). That, according to the Air Force, is the level that makes things unlivable. Some cutoff. Anything less, the Air Force doesn't even consider. That's how the Air Force gets such a low number for those who will be adversely impacted.

## VIII. APPENDIX C: Materials Relied Upon

Fidell, S., B. Tabachnick, and L. Silvati. 1996. Effects of Military Aircraft Noise on Residential Property Values. 16 October.

Mankiw, N.G. 2008. *Principles of Economics*, 6<sup>th</sup> Edition, Mason, OH: South-Western Cengage Learning.

Mankiw, N.G. 2006. "How are wages and productivity related?"  
<http://gregmankiw.blogspot.com/2006/08/how-are-wages-and-productivity-related.html>

Nelson, J. 2003. Meta-Analysis of Airport Noise and Hedonic Property Values: Problems and Prospects. July.

Novotney, A. 2011. "Silence Please! Psychologists are increasing awareness of the harmful effects noise has on cognition and health," *Monitor on Psychology*, 42(7),  
<http://www.apa.org/monitor/2011/07-08/silence.aspx> .

U.S. Air Force. 2012. Draft F-35A Training Basing Environmental Impact Statement, Summary of Environmental Impact Analysis, <http://www.f-35atrainingeis.com/EisDocument.html>.

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