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A Profile of Canadian Adult Learners: Evidence from Six Classes of the National Graduates Survey, 1982-2005

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Abstract

Research on post-secondary education (PSE) participation mainly focuses on *young adults'* initial enrolment decisions after high school. With the increased availability of alternative learning modes (e.g., part-time or online classes) offered by PSE institutions, more skills upgrading opportunities are now possible for *adult learners*. There has been relatively little work done on adult learners' participation in PSE since most studies on adult learning focus on lifelong-learning opportunities or workplace training using cross-sectional survey data. This paper attempts to fill this gap in the literature. Using six waves of National Graduates Survey, we aim at documenting trends in postsecondary education among adult learners. The findings will allow us to better understand the characteristics and learning goals of adult learners.

Executive Summary

As the Canadian population ages, the size of the labour force is projected to shrink, and those older workers will supply fewer hours. Concurrently, the pool of potential young post-secondary education students will become smaller. These factors together imply that the country will be challenged to remain productive in an increasingly knowledge-based and competitive global economy. If Canada is to increase the stock of educated people increasing the education level of the adult population (i.e., those over the age of 25) seems to be an obvious way to meet this objective.

Adult education can be either informal education – usually job-specific training that is employer-provided and does not lead to a recognized credential – or formal education – generally provided by educational institutions, financed by the student, and leading to a diploma, certificate or degree. It is this latter type of education on which we focus.

We use six cycles of the National Graduates Survey (NGS) to profile changes in the education characteristics of the adult population between 1982 and 2005. The NGS surveys individuals who graduated from Canadian post-secondary education institutions - including trade and vocational schools, colleges, and universities – two years following the year of graduation (e.g., the class of 2000 was surveyed in 2002). We find several interesting trends in the graduating classes over this period, many of which are related to the group of adult learners in the 24-29 and 30+ age groups. In particular:

- the total number of graduates increased dramatically between 1982 and 2005, and the growth in the number of graduates who were 30 years and older (125%) was larger than for those in the 16-24 and 25-29 age groups (49% and 80%, respectively);
- part of this increase in the older age group was likely due to population changes as the 30+ age group increased in size by 60% (compared to declines of about 7-10% for the other two groups);
- the proportion of those graduating from PSE institutions has increased among those in the two 25+ age groups, but declined for those 16-24 years of age;
- the number of graduates from all age groups have increased dramatically from colleges and universities. The growth in the number of trades graduates has been stagnant or negative;
- graduates, especially those in the older age groups, tend to have higher levels of previous education, and this has increased over time. Education begets more education;
- there is no longer a single, unidirectional path to graduation as there is an increase in movements between “levels” of PSE;
- Older students are more likely to complete their college programs quickly, but take longer at university.

**A Profile of Canadian Adult Learners: Evidence from Six Classes
of the National Graduates Survey, 1982-2005**

Introduction

There are several reasons why adult education is important. Having a skilled labour force is viewed by many as essential to Canada's long-term competitiveness in the global information economy. This coupled with the fact that the Canadian population is aging means that the smaller number of young Canadians may not be able to satisfy the country's need for a highly educated labour force. In essence, it may be necessary to offer education to students of non-traditional ages to counter the declining pool of younger Canadians. Thus, a smaller working age population that is more educated and therefore more productive. Furthermore, non-formal on on-the-job training is another component of education, and those with higher levels of formal education are more likely to subsequently receive this type of training as well.

Here we focus on a very specific type of adult education: formal education. This is defined as those over the age of 25 who pursue a program of studies which leads to a learning credential. This includes university degrees or certificates, college diplomas and certificates, and trades certification. In particular, we look at those who graduated from post-secondary education programs in Canada between 1982 and 2005. We utilize six waves of the National Graduates Survey, a survey conducted two years after the graduation from postsecondary education programs during the calendar years of 1982, 1986, 1990, 1995, 2000, and 2005. Our purpose is to see what changes have occurred over time in terms of the number of adult learners, their programs of study, time to completion, etc. Comparisons with those less than 25 years of age are also made. Throughout the paper we will concentrate on describing the trends in adult education. A detailed analysis of these trends is beyond the scope of this paper and is left for future research.

Literature

There has recently been increasing attention paid to adult learning in Canada. The existing literature on adult training provides mixed results regarding the prevalence and intensity of training. Training tends to be divided into two categories. First, is informal or on-the-job training. This is normally provided and paid for by the employer, is designed to enhance the productivity of the individual at his/her current place of employment, and does not lead to any type of credential (i.e., a degree, diploma or certificate). Second, is formal training or education. This type of training is usually provided by a dedicated educational institution, normally it is paid for by the individual, is not job-specific, and leads to a formal credential. These two types of training both contribute to the stock of human capital, and they are not mutually exclusive since those with formal education are more likely to receive informal training.

Indeed, it is customary to talk about both adult formal and informal training together since they are so intertwined. Drewes (2008) uses the Survey of Labour and Income Dynamics (SLID) from 2002 to 2004 to address the incidence of adult training and education. In 2003, only 7 percent of the adult workforce (defined as greater than 24 years of age in 2002, not retired at any time in the 2002-04 period, and who have been working full-time since at least 2002) participated in formal training, but those who do participate average 385 hours per year doing so. By contrast, over 20 percent of adults participate in job-related training, averaging less than 40 hours per year, conditional on participation. As with Knighton, et al. (2009), education participation rates tend to fall as age increases, whereas job-related training participation is more uniform across age groups. He also discovers that prior education attainment and firm size are important and positively correlated to adult learning. He also finds some small provincial and industry differences. Unemployment rates and frequent job changes are also positively associated with transitioning into education and training.

Myers and de Broucker (2006) arrive at similar results using the 2003 Adult Education and Training Survey to address some of the characteristics of adult participation in post-

secondary education in 2002. They find that of those 25-54 years of age, 7.4 percent participated in PSE at some point over that year. They also discover different participation rates between provinces. Colleges (including CEGEP) were the most popular choice (36 percent), followed by university (29 percent), trade or vocational training (28 percent) and apprenticeships (7 percent). Amongst the college enrolment, they cite survey evidence from other sources which show that 36 percent of those in college programs are registered in post-diploma programs. In other words, these individuals already possessed a college diploma and/or a university degree.

In more recent work, Knighton, et al. (2009) use the Access and Support to Education and Training Survey (or ASETS)¹ conducted between June and October of 2008. In the one-year period between July 2007 and June 2008, 47 percent of Canadians aged 18 to 64 participated in some type of education or training activity. The former is more formal and classroom-based learning which leads to a credential, while the latter is less formal (e.g., on-the-job training, workshops, etc.) and does not lead to a formal education credential. Among this age group, about 34 percent participated in the latter, with only 18 percent participating in the former. Not surprisingly, age is negatively correlated with education, but positively associated with training up to the age of 45. Thus, younger people tend to get an education, whereas older people tend to receive training. Participation in either activity was also slightly higher for females (48 versus 46 percent) and those with more education. Regional differences were also present with Prince Edward Island, Saskatchewan and Alberta having participation rates for education or training above 50 percent while Quebec had the nation's lowest rate at about 40 percent.

Other evidence exists showing that younger people are more likely to take up formal training than their older counterparts. Zhang and Palameta (2006), for example, use the SLID from 1993 to 1998 and 1996 to 2001 and find that those who are young (17-34

¹ The ASETS is combines three previous education surveys: The Survey of Approaches to Educational Planning (SAEP), the Post-Secondary Education Participation Survey (PEPS) and the Adult Education and Training Survey (AETS). Each of these previous surveys focused on different age groups as well as examined different aspects of higher education.

years old), single, and had at least a high school education were most likely to participate in formal training (i.e., leading to a certificate) and to obtain a post-secondary certificate.

The NGS has been used frequently to profile – both directly and indirectly -- the Canadian graduate population. Often, however, these studies have selected a very narrow sample for the purposes of their papers (e.g., Betts, Ferrall and Finnie (2000) use the 1982, 1986 and 1990 graduating classes, and Allen, Harris and Butlin (2003) the 1986, 1990, and 1995 graduating classes), but some profile information can still be garnered. Other studies directly provide profiles of the graduating class but only use a single wave (e.g., Allen and Vaillancourt, 2004; and Bayard and Greelee, 2009). Thus all these studies are of limited use for the present purpose which is to profile the adult graduate population over a number of years.

Other studies limit the analysis to those who follow more traditional education pathways from high school to PSE and finally into the labour market. For example, Betts, Ferrall and Finnie (2000) use the 1982, 1986 and 1990 waves to compare the time it takes Canadian university graduates to find their first full-time jobs. They limit their sample to include only university graduates who entered their university programs with less than one year of total work experience and no job spell lasting longer than six month. , however, and their focus is not on profiling the graduate population over the time period. Not surprisingly, they do show that the age at graduation is relatively stable over this eight-year period (between 23.3 and 24 years). Perhaps more interesting is that the proportion of female graduates increased from 50 percent in 1982 to 58 percent in 1990.

Allen, Harris and Butlin (2003) also use three waves of the NGS (1986, 1990, and 1995) to address the post-graduation outcomes of both college and university students. But they too limit their sample to include only those who went directly from high school to post-secondary education. Barr-Telford, et al. (2003) uses the Postsecondary Education Participation Survey (PEPS), but the scope of this survey is limited to those 18-24 years of age (17-24 in Quebec owing to its unique CEGEP system). Thus, these studies are of limited use for present purposes where our interest is in profiling adult learners. Other

studies (e.g., Peters, 2004) focus only on adult workers (those 25 years of age or older). In either case, this makes the comparison of older and younger students impossible.

The age composition of graduates at Canadian colleges and universities has been changing over the past two decades. Evidence from the National Graduates Survey for the classes of 1986 and 2005 allows a rather crude look at changes in the age profile in particular.² In 1986, about 75 percent of college graduates were under the age of 25 compared to 61 percent of 2005 college graduates. For bachelor graduates from universities, the comparable figures are more stable, increasing only two-percentage points from 60 to 62 percent over this period. Another factor which has changed is the proportion of those entering within 12-months of completing secondary school. For colleges, about 46 percent of the Class of 1986 entered within a year of completing secondary school. For the Class of 2005, this number decreased to 32 percent. Universities saw the number of recent secondary school completers drop from 46 percent to 40 percent over this same 19-year window. Together, these statistics suggest that people are waiting longer to attend postsecondary institutions, especially colleges.

Junor and Usher (2004) shows that the age distribution of college and university students changed little over the past two decades. Still, while the average age of university students was 21 in 1980-81, this increased slightly to 22 in 1999-2000. This small difference somewhat masks the increase in both younger and older (over the age of 30). Thus, there have been small but measurable changes in the age distributions at both universities and colleges.

Recent work by Parsons and McMullen (2009) does profile the university graduate population from 1992 through 2007 using the Postsecondary Student Information System (PSIS). They find that between 1992 and 2007 the number of university graduates grew by 43 percent, but that those between the ages of 22 and 24 (the “typical” university graduate) accounting for 44 percent of all graduates in both 1992 and 2007. By contrast,

² These numbers are taken directly from Bayard and Greenlee (2009) and calculated by the authors from the figures provided by Allen, Harris, and Butlin (2003).

the proportion of those in the 25-29 year-old age group increased from 22 to 25 percent over this same period, while the share of those aged 30+ fell from 25 to 23 percent (the remaining proportions in each year were less than 22 years of age).

Theoretically, there are economic arguments both for and against receiving an education later in life. Delaying a formal education may result in a better match between the student and his or her chosen field of study. This may be especially relevant for those who are “late bloomers”. There is also evidence that returns to those who return to school following a period of absence from educational institutions (i.e., those who delay entry) earn a wage premium over those who take their postsecondary education on a continual basis, and these returns are above those to the additional labour market experience acquired by delaying PSE (Ferrer and Menendez, 2009).³ The downside of later entry – and graduation – is that individuals may not have a sufficient remaining working career to justify the direct and opportunity costs of this investment in education. It is also well-known that education begets more education in terms of both formal and informal learning. This can further increase education and income inequalities (Livingstone, 2002; Myers and Myles, 2005). Thus, education may not be distributed appropriately within the adult population and the results may work against other policy objectives.

The fact that returns to post-secondary education relative to a high school diploma, regardless of level, have been rising over this period (Drewes, 2006; Boudarbat, Lemieux and Riddell, 2010). This may shift the cost-benefit balance in favour of pursuing further education among older Canadians. Further, this may occur even (as has been well documented) the costs of PSE have increased.

While changes in the market returns to education will affect all age groups (although not necessarily equally), there are other factors which may only influence older students. For example, a number of post-secondary institutions are assisting mature students in a variety of ways. Myers and de Broucker (2006) note that many institutions have flexible

³ Work in progress by the authors addressing the education premium for adult learners vis-à-vis younger learners.

admissions policies, recognition of prior learning, or even waving the high school graduation requirement, all in an effort to attract older students. They do admit, however, that there is little evidence regarding the efficacy of these policies. They also agree that despite these more welcoming policies, the student financial aid system is structured to benefit younger students who follow the traditional high school to PSE path. For example, older students may not be eligible for student loans since they have too many assets. This acts as a disincentive for older students wishing to attend PSE.

Data

We utilize the National Graduates Survey (NGS) to conduct the subsequent analysis. NGS is a longitudinal survey with graduates being interviewed at two years and five years after graduating from post-secondary institutions in Canada. The objective of the survey is to obtain information on the labour market experience of graduates entering the labour market and the relationship between jobs and education. The target population includes graduates of university programs, post-secondary programs, and skilled trades.⁴

The survey frame is those who completed their programs from a Canadian post-secondary institution in one of the years 1982, 1986, 1990, 1995, 2000 and 2005.⁵ An obvious caveat is that we are limited to addressing those who graduated from PSE programs (for which these data are ideal), but we are unable to analyze enrolment and dropout or stopout behaviour.⁶

Descriptives

⁴ The NGS excludes graduates from private post-secondary institutions (for example, computer training and commercial secretarial school); graduates who completed “continuing education” courses at universities and colleges unless they led to a degree or diploma; and graduates in apprenticeship programs.

⁵ In 1978, Statistics Canada conducted a survey on the labour market experiences of 1976 graduates. It is considered the first of the NGS series. However, to have better data consistencies over time, this paper uses all available surveys from the class of 1982 onwards.

⁶ We initially attempted to use the Postsecondary Student Information System (PSIS) for the years from 1992/1993 to 2004/2005 which use administrative data on enrolments and include basic demographic characteristics including age for the descriptive. However, the age variable was missing in a large proportion of cases before 2001/2002 (ranging from 25% to 40% at a given year).

Using the NGS data, this paper aims at documenting trends in postsecondary education among adult learners over a 20-year span. In the following section, we will present different sets of graphs to describe the trends of postsecondary graduates by age groups, program level, highest education attainment before enrolment, and time of completion.

Results

Growth in Total Number of Graduates Exceeds Population Growth for All Age Groups

The growth in the number of PSE graduates has been large. Over the 23-year period the overall number has increased by about 69 percent from 209,336 in 1982 to 354,220 in 2005.⁷ But this growth has not been evenly distributed in our two groups of learners. Figure 1 shows the number of graduates by age group for the six graduating classes in our NGS sample. The number of graduates in the 16-24 year-old age group increased from 130,288 in 1982 to 193,571 in 2005 – and increase of 48.6 percent over this period. For comparison purposes, the number of 25-29 year-old graduates increased some 79.7 percent over this same period, while those in the 30+ age group had their graduation numbers increase by 125.4 percent.⁸

The data in Figure 2 show the percentage of all graduates accounted for by each of the three age groups. In 1982, almost 63 percent of all graduates were in the 16-24 age group, declining to 55 percent in 2005. The proportion of graduates in the 25-29 year-old group remained relative steady over this period, increasing by only about 1 percentage point to 19.4 percent. Those in the 30+ age group increased their proportion of graduates from 19 percent to over 25 percent.

Over this period of time there were changes in demographics as well as overall PSE enrolments that could be driving the changes in the number of graduates. The population

⁷ The overall number is the total weighted count of each survey.

⁸ For obvious reasons, these figures exclude those in the “not stated” category which accounted for about 5 percent of the total weighted observations in 1986 and two percent or less in the other five years.

of the three age groups under investigation is shown in Figure 3. The Canadian population in general is getting older. The 30+ age group contained about 12.5 million people in 1982, increasing 60.1 percent to almost 20 million by 2005. Conversely, the number of 16-24 year-olds fell by 9.8 percent over this same period, while those middle age group experienced a decline of 7.4 percent.

Combining the data from these three figures we see that there has been a rather sizeable increase in the number of graduates in all three all groups, even though the population numbers in the 16-24 and 25-29 year old age groups have fallen over this period. For the 30+ age group, the growth in the number of graduates has outpaced the growth in population by 2-to-1. To account for this change in population share, the data presented in Figure 4 are rough estimates of graduation rates. These are calculated by dividing the number of graduates in each age group (Figure 1), by the total population in each group (Figure 3). The proportion of the total 16+ population graduating from PSE increased by about one-third over this period to about 2 percent points in 2005. Those in the youngest age group (16-24) had graduation increase from about three percent to five percent – an increase of 65 percent. Those in the 30+ age group had the smallest increase in relative terms. The increase in the graduation rates of 25-29 year olds was the largest, increasing by about 94 percent over this period. Part of this increase could occur if young people are simply taking longer to complete their schooling (although we find little evidence of this below). This in turn could be due to increased time to completion in general, as well as the fact that increasing numbers of Canadians are pursuing more than one post-secondary credential.

Large Increases in Graduates in From Colleges and Universities, But Trade and Vocational Programs Lag

The following charts disaggregate the previous data into the types of programs from which students graduating. Again, we preserve the age groups from the previous results. Figure 5 shows the number of graduates of trade and vocational programs decreased from about 55 thousand to 48 thousand over the period of analysis. This decline is

concentrated in the under-30 age group, where the decline in the number of 16-24 year olds graduating fell by 19.4 percent. The 25-29 year old age group saw their numbers decline by 35.3 percent. Only the 30+ age increased their numbers, by some 15 percent. Still, given the population changes in each of these groups, the net increase for all age groups is negative.⁹

College graduations, by contrast, increased for all age groups (Figure 6). The most pronounced increase was amongst those in the 30+ age group: an increase of almost 500 percent. The youngest age group increased by about 43 percent and the middle group more than tripled the number of graduates, an increase of 207 percent.

For undergraduate program, the trends are also positive for each age group. Figure 7 shows that the number of graduates increased by 75 percent for those in the 25-29 year old group. The comparable figures for the youngest and oldest age groups are 87 and 102 percent, respectively. These are figures for all undergraduate programs including bachelors degree programs and undergraduate certificate and diploma programs.

Since participation in these programs may differ by age group (e.g., older student might be more inclined to pursue shorter certificate or diploma programs), we disaggregate undergraduate education into these two streams. In the NGS, these data are only available from 1986 onwards, so care must be taken in comparing these results to the results in Figure 7 which uses data from all six cycles of the NGS. Here we see that the number of graduates for certificate/diploma programs increased only modestly for those 30 and over (Figure 8) from 1986 to 2005. By contrast, the popularity of these shorter programs seemed to have increased for those in the younger age groups increasing by at least 28 percent. These increases are still much smaller than those for traditional undergraduate bachelors programs (Figure 9) where the number of graduates rose by 58.5 percent for the youngest age group, decreasing to 46.5 percent for those 30+. The increase in

⁹ It is also important to consider the rising trend of enrolment in the registered apprenticeship program. In a recent working paper by Laporte and Mueller (2010), the number of registered apprentices has increased by about 120 percent between 1995 and 2007. The increase in apprenticeship enrolment might explain part of the decline of trade graduates.

graduate in undergraduate programs over time is mostly driven by the increase in traditional bachelor program.

Dramatic Growth in Graduates from Masters and Doctoral Level Programs

Figure 10 shows the growth in graduates from Masters degree and graduate certificate and diploma programs. For all age groups, there has been large increase in the number of graduates. Even the group with the smallest increase – those between ages 25 and 29 -- still increased by almost 174 percent. As with the case of graduates with undergraduate programs, there is some heterogeneity by age within different levels of Masters level education. Figure 11 shows the growth in graduate diploma and certificate programs between 1986 and 2005 (recall, these data are not available for 1982). Even the number of 16-24 year olds – the group with the lowest growth rate – increased by 182 percent over this 19-year period. Given the relatively small number of graduates in 1986, however, these large increases likely speak more to the increased availability and popularity of these programs in general more than specifying any firm trend between the age groups. Regarding traditional Masters programs, Figure 12 shows that the number of students in these programs more than doubled between 1986 and 2005. The largest increase (143.4 percent) was among those in the middle age group. Not surprising since a Bachelors degree is the normal prerequisite for graduate education.

Figure 13 again shows the large growth rates in the number of graduates from graduate university programs, but this time at the doctoral level. For both over-25 year old age groups, the number of graduates has more than tripled. This reflects the overall trend in graduate education.

Multiple Credentials Becoming More Common, Especially for Older Students

The next set of figures show the level of educational attainment achieved prior to the entrance into the program of reference. The information can be extracted from 1986 NGS onwards and so the discussion can only be done between 1986 and 2005.

Educational attainment is defined by Statistics Canada to be the highest level of education obtained. This is a somewhat arbitrary classification so trade and vocational programs, for example, are lower on the hierarchy than an undergraduate university degree. Thus, someone holding a college diploma and an undergraduate degree before starting a college post-diploma certificate would be categorized as having only a bachelor's degree. The following fifteen figures outline the highest level of educational attainment before entering the program from which the individual graduated (i.e., the program for which they were interviewed). Separate figures are included for each of the three age groups: 16-24, 24-29, and 30+.

Figures 14 to 16 show the highest level of education amongst those graduating from trade and vocational programs. For the youngest group (Figure 14) most individuals had no PSE, and this increased by about 30 percent between 1986 and 2005. Arguably more striking (since these people are relative young) is the number of those who entered their programs with a previous credential, and the high growth rates of those with "higher" levels of previous education graduating from trade and vocations programs. While those with a previous trade certificate grew by about 14 percent over this period, university and college graduates grew by 180 percent and 363 percent, respectively.

This pattern is continued from older trade graduates as well. While the number of those without any PSE decreased by 35 percent (Figure 15), those with an undergraduate degree increased by 106 percent, while those holding a prior college diploma or certificate almost tripled. Even a few individuals with Master's degrees completed trade and vocational certificates over this period. This increase in previous credentials is even more pronounced among those in the 30+ age group (Figure 16), with the number of college graduates almost quadrupling (an increase of 288 percent), while the number of those with undergraduate credentials increased by almost 200 percent, while those with a Master's degree or graduate diploma or certificate increased by 354 percent.

Figures 17 to 19 repeat this exercise, but for those who graduated from colleges in each of the five years. Amongst 16-24 year olds (Figure 17) there was an increase of 43 percent of those with no prior PSE. This reflects the general increase in college graduates (Figure 6). However, as with the case of trade and vocational school graduates, there has been a large increase in the number of individuals with prior PSE. Although the number of those with previous trades education fell by 74 percent, the numbers of those who previously graduated from colleges and undergraduate and Master's level programs at university at least tripled. These trends in previous education are even more pronounced among the older age groups (Figures 18 and 19) where those with college and/or university education more than quadrupled (i.e., increases of 300 percent or more). The exception is for those with doctoral degrees, whose numbers are few but still more than doubled among the 30+ age group. It is also important to note that there is a larger increase graduates among the 25-29 and 30+ age group than among in the 16-24 year age group (which itself also grew). Thus, colleges appear to be performing their traditional role of educating young Canadians, but have also assumed a new role of educating increasing numbers of mature students regardless of their previous level of education.

As discussed in the previous section, the graduates in the bachelor programs dominate the undergraduate programs. Therefore, we will present the credentials before enrolment for the bachelor programs in Figures 20 to 22.¹⁰ Although no prior PSE is the generally the most common level upon entry, the college and undergraduate diploma program path, having a college education or a first Bachelor's degree become increasingly common for the two older age groups. Also the number of those with undergraduate diplomas has at least doubled for each age group over the 1986 to 2005 period. In addition, there has been substantial growth in those with Master's degree and even doctorates returning and obtaining an undergraduate education.

Similar to the discussion of the undergraduate program, for the master level program, we will present trends for the master programs only given the limited number of graduates in

¹⁰ Trends on undergraduate programs including the undergraduate diploma/certificate are available upon request. The trend is similar to the ones observed in the Bachelor programs.

graduate diploma/certificate.¹¹ Figures 23 to 25 show that pre-entry credentials for Master's degree programs mostly a Bachelor's degree for all age groups, although the growth rates in those with prior graduate degrees increased at a faster rate, particularly for those in the two oldest age groups.

For doctoral level education, there are only three credentials that individuals possess before entry: an undergraduate or master's level education, or a previous doctorate. Figure 26 shows the youngest age group where there are very few individuals who graduate from doctoral programs, which may explain the random pattern in this figure. For those in the middle age group (Figure 27) the number of graduates with a prior Master's level program has increased by 165 percent, whereas those with an undergraduate credential prior to entry have increases by 232 percent. Those in the oldest age group (Figure 28), these increases are also large, but those with a Master's credential have growth at a faster rate than those with only an undergraduate education (324 versus 174 percent).

Older Grads More Likely to Complete College Quickly, Take Longer at University

The next variable of interest is the time to completion. It is thought that older graduates may take longer to complete their programs owing to family and job responsibilities, factors which are less likely to influence younger graduates. Conversely, older students may be more career oriented and motivated, and perhaps have found a better match for their skills and interests, thus shortening their time to completion. The data only go back to 1990, thus allowing us only to observe a 15-year trend.

Figures 29 to 31 describes the time to completion trends for those in each of the age groups who graduated from trade and vocational schools. Most graduates finish their programs within two years, regardless of age. This is likely due to the shorter duration of these programs.

¹¹ Again, trends on master programs including the graduate diploma/certificate are also available upon request.

The trends for college graduates (Figures 32 through 34) show that a dramatic increase in those who take less than one year to complete their programs. This 600 percent or greater increase occurs for all age groups and could be due to the increase in the number of shorter college programs such as post-graduate certificates (which our data do not allow us to disaggregate further). What is striking is that the proportion of those who take one to two years is larger for the older age groups than for the 16-24 age group in 2005, and this gap has been widening since 1990. In other words, a higher proportion of older students are finishing within a year or two compared to the younger group.

The pattern for graduates of university undergraduate programs show increases for all program lengths, and for all age groups (Figures 35 to 37). Not surprising given the larger increase in the number of those graduating from university (Figure 7). In general, the largest increases are for those taking more than five years to complete their programs and those taking one to two years, the latter result due to the increased popularity of undergraduate certificates and diplomas, where the number of graduates has grown by threefold to fourfold since 1990 (see Figure 8). In terms of differences between age groups, if we consider 3 to 4 years as the normal time to graduation, then those in the 16-24 year old age group are over two times as likely to graduate on time compared to those who take five or more years in 2005. The growth rate in the latter category has still been larger (82 percent versus 30 percent). For the 25-29 age group, those completing in three or four years is about 1.5 times the number of those who complete in five or more. For the 30+ age group, the ratio is about one-to-one. Thus, the probability of completion in three to four years seems to decrease with age.

Some of these changes in the time to completion are the result of changes in the composition of undergraduate programs between traditional Bachelor's degree programs and the newer undergraduate certificate and diploma programs. Figures 38, 39, and 40 show the trends in the later programs. Regardless of age, the largest proportion of those enrolled complete in one to two years, at least in 2005. That said, the youngest age group is much less likely to take three to four years to complete compared to the other two

groups. Overtime, the probability of completion in three or four years has increased more rapidly than the probability of completing in one or two years, but only for the two older groups.

In terms of traditional Bachelor's level programs (Figures 41 to 43), we see that most individuals do graduate in three to four years, at least among those less than 30 years old, although among the oldest group, it is still slightly more likely to take five or more years. For all three groups, the fastest growth rate has been among those graduating in one to two years, not surprising considering many of these entered their programs in possession of a previous credential (see Figures 20 to 22) and likely many others were able to transfer credits earned at other institutions where they attended, but did not graduate before transferring to university.

As with undergraduate education, time to completion appears to be a positive function of age in Master's and graduate diploma and certificate programs. Given that the graduate diplomas and certificates are too small in sample size to detect any trends, the trends of the traditional Master's program is presented in Figures 44 to 46.¹² A larger proportion of 16 to 24 year olds graduate in one to two years compared to those who take 3 to 4 years to complete, but this gap narrows as the move up through the age groups in 2005. Thus, older students take longer to complete Master's programs. More encouraging is that the proportion of those who graduated in one or two years has been increasing for all age groups, as evidence by the high growth rates compared to three to four years.

The time to completion trends for doctoral level graduates show a different pattern. Namely a movement to longer completion times over the 1990 to 2005 period. These data are contained in Figures 47 to 49. Since the numbers of graduates in the 16-24 year-old age group are so small, we will not discuss the results, but rather include them only for completeness. Among those in the two older groups, the proportion of those taking five

¹² Trends for both the master programs and the graduate diploma /certificate largely follow those identified in the master programs described in the main text.

years or longer to complete has increased at a faster rate than those who took less time to completion.

Conclusions

We have discovered a number of interesting trends in our descriptive analysis of the six cycles of the NGS between 1982 and 2005.

First, although the number of young Canadians (those 25 and under) has been decreasing over the 1982 to 2005 period, the number of those graduating from trade, college, and university programs has continued to increase. Second it is interesting to note that all programs (trade, college and undergraduate university programs) are still largely in the business of educating young Canadians without any prior PSE degree, diploma or certificate. Still, this is changing as a good share of the growth in the number of graduates can be disproportionately attributed to those in the 25-29 and 30+ age groups at the time of graduation.

In terms of credentials prior to entry, the main pattern we detect – both within and between age groups – is no pattern at all. There is increasing heterogeneity in the education pathways that people take. Individuals, regardless of age, are increasingly likely to move between levels of education (say, university followed by college) and also to complete lower level programs following completion of higher level ones (say an undergraduate degree following a graduate degree).

With the rich information provided by the NGS, trends on other interesting variables including field of study and other demographics can be done to enrich our understanding of the composition of our postsecondary graduates. After identifying the trends, the next step of the research will be to relate the returns to education to the labour market experience afterwards, in particular, their qualification and relevance of their study to their job after graduation and their satisfaction with job and money after graduation. We

can then understand more about the motivation for taking up postsecondary education among adult learners.

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Figure 1: Number of Graduates by Age Group, 1982-2005

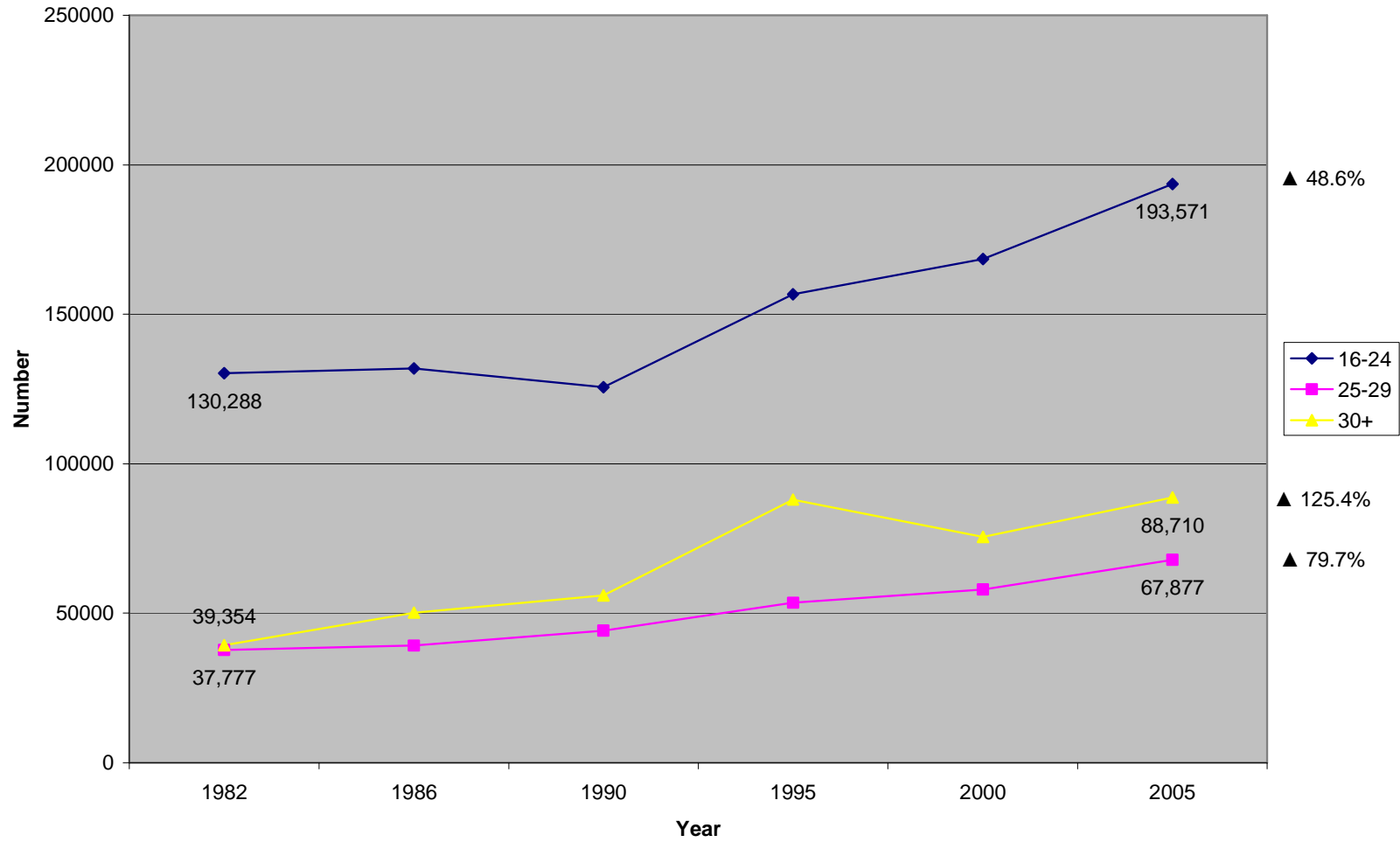


Figure 2: Percentage of All Graduates Aged 16+ by Age Group, Selected Years, 1982-2005

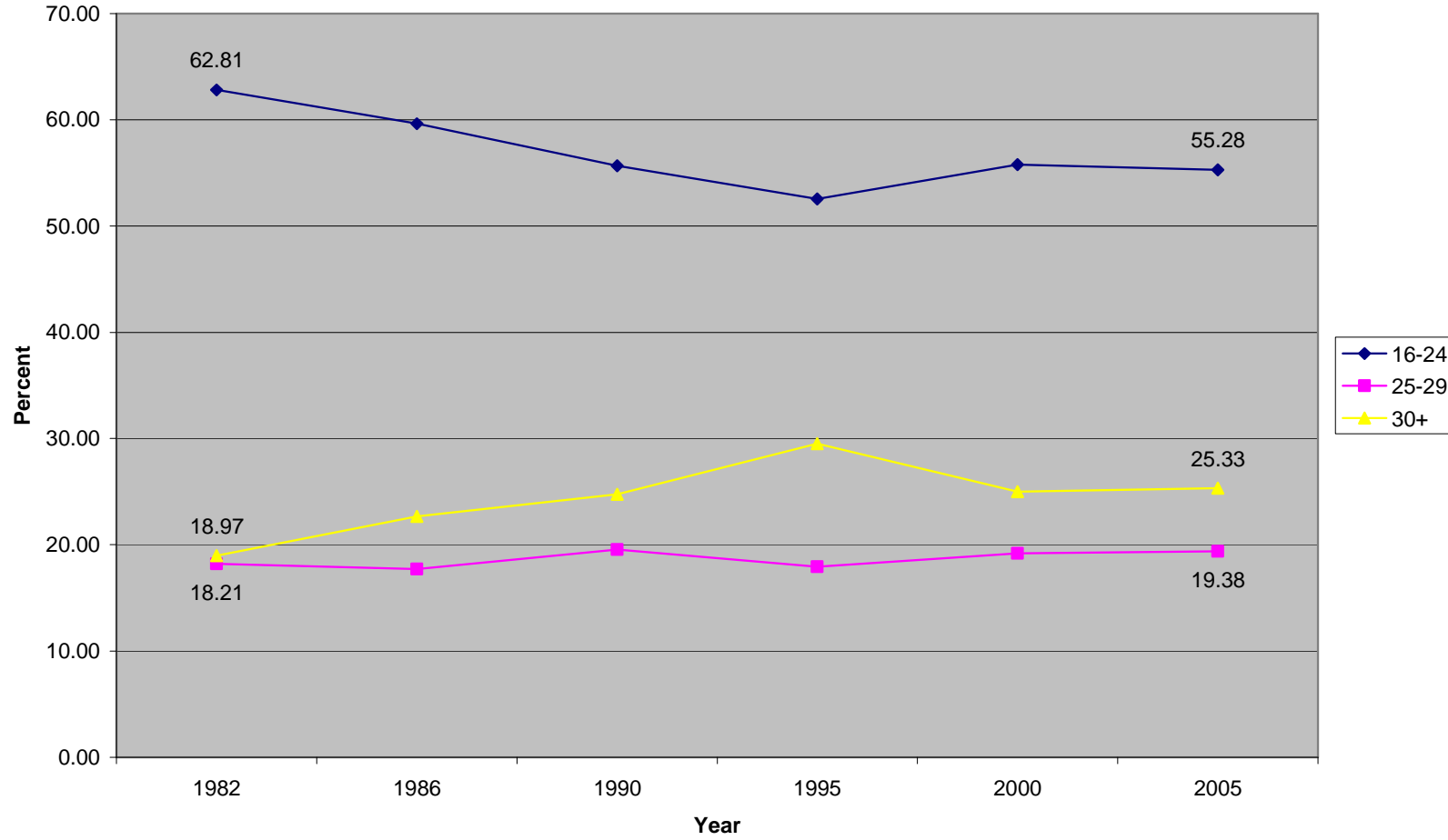


Figure 3: Population by Age Group, 1982-2005

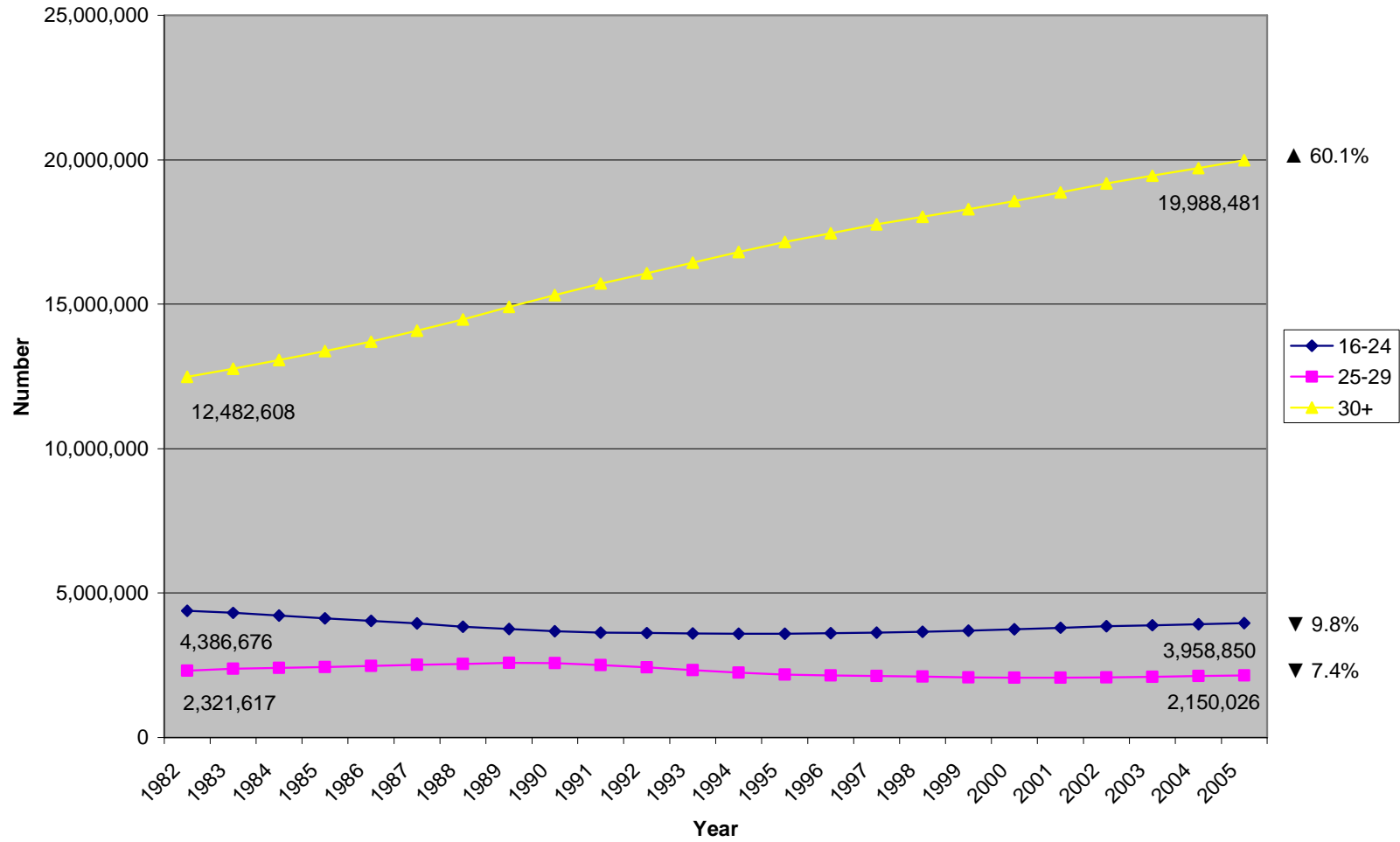


Figure 4: Proportion of Graduates by Selected Age Group, 1982-2005

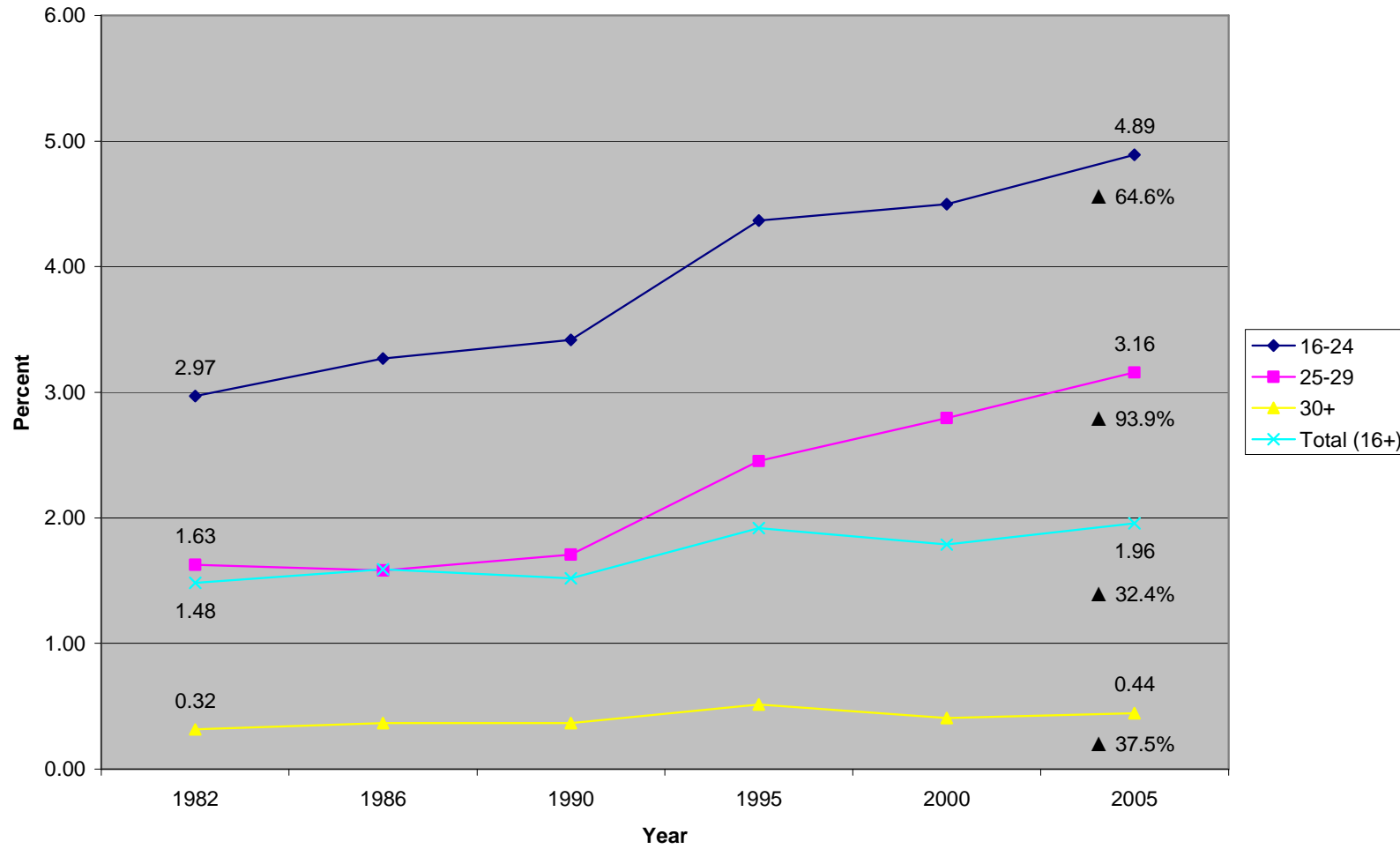


Figure 5: Number of Graduates of Trades Programs by Age Group, 1982-2005

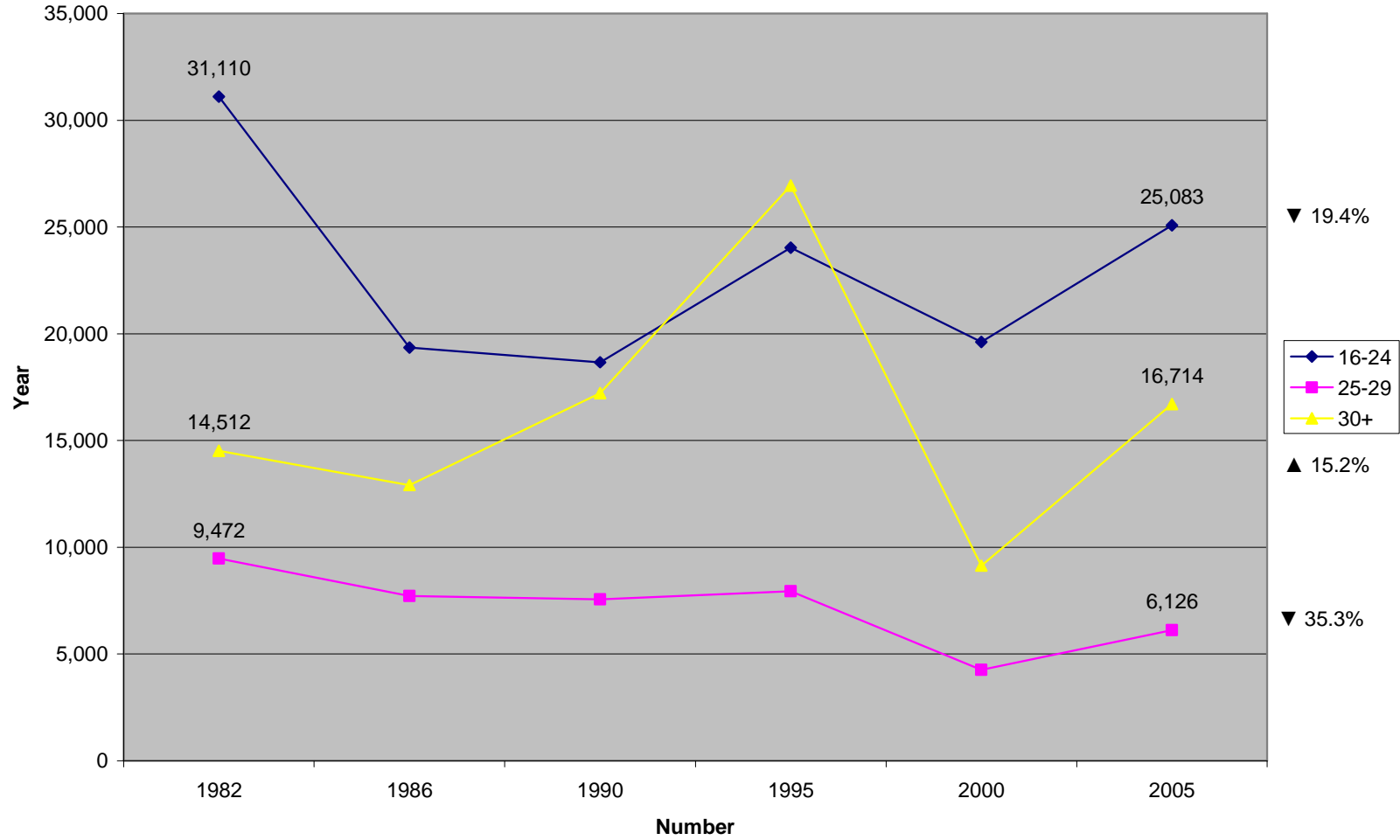


Figure 6: Number of Graduates of College Programs by Age Group, 1982-2005

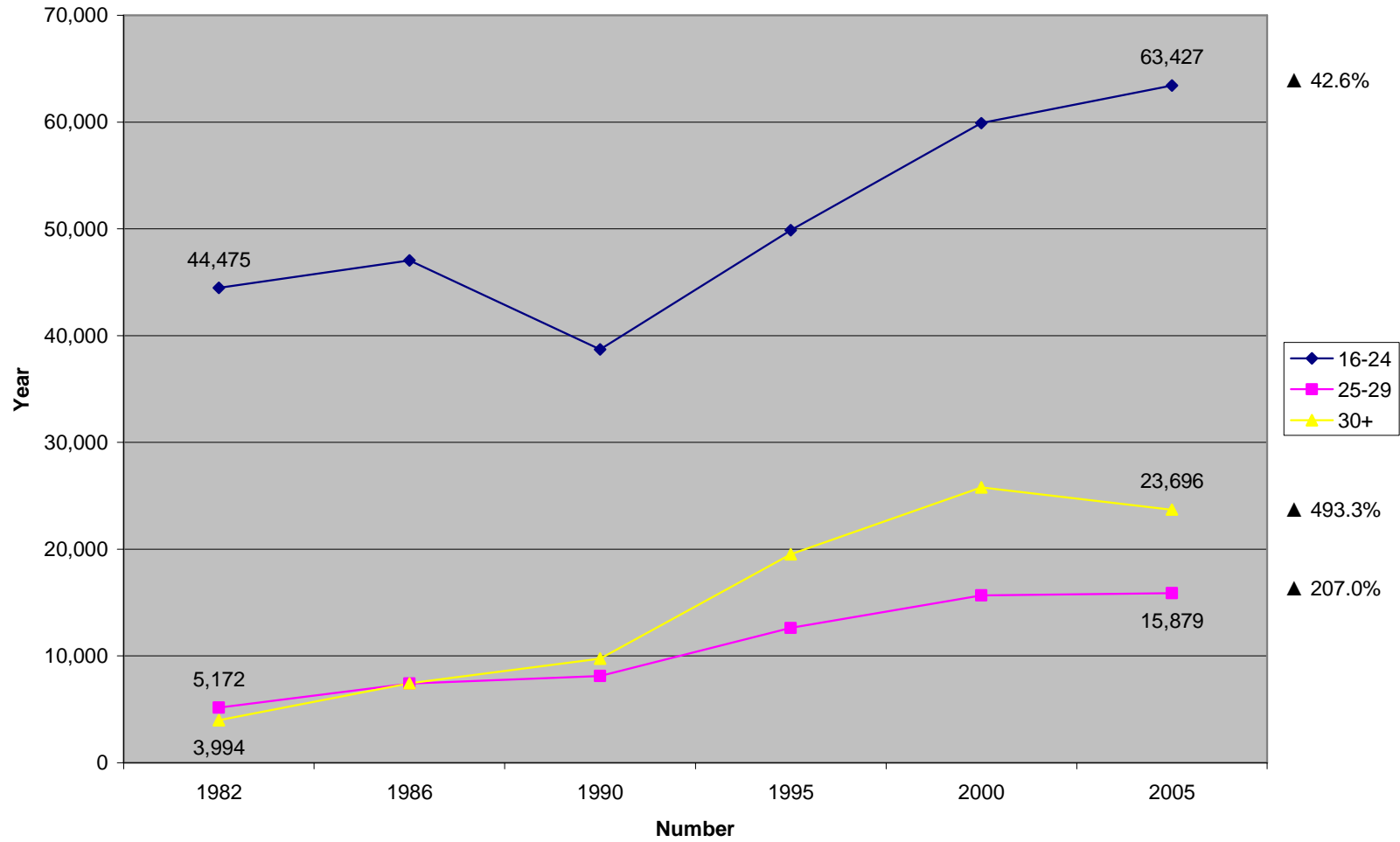


Figure 7: Number of Graduates of Undergraduate University Programs by Age Group, 1982-2005

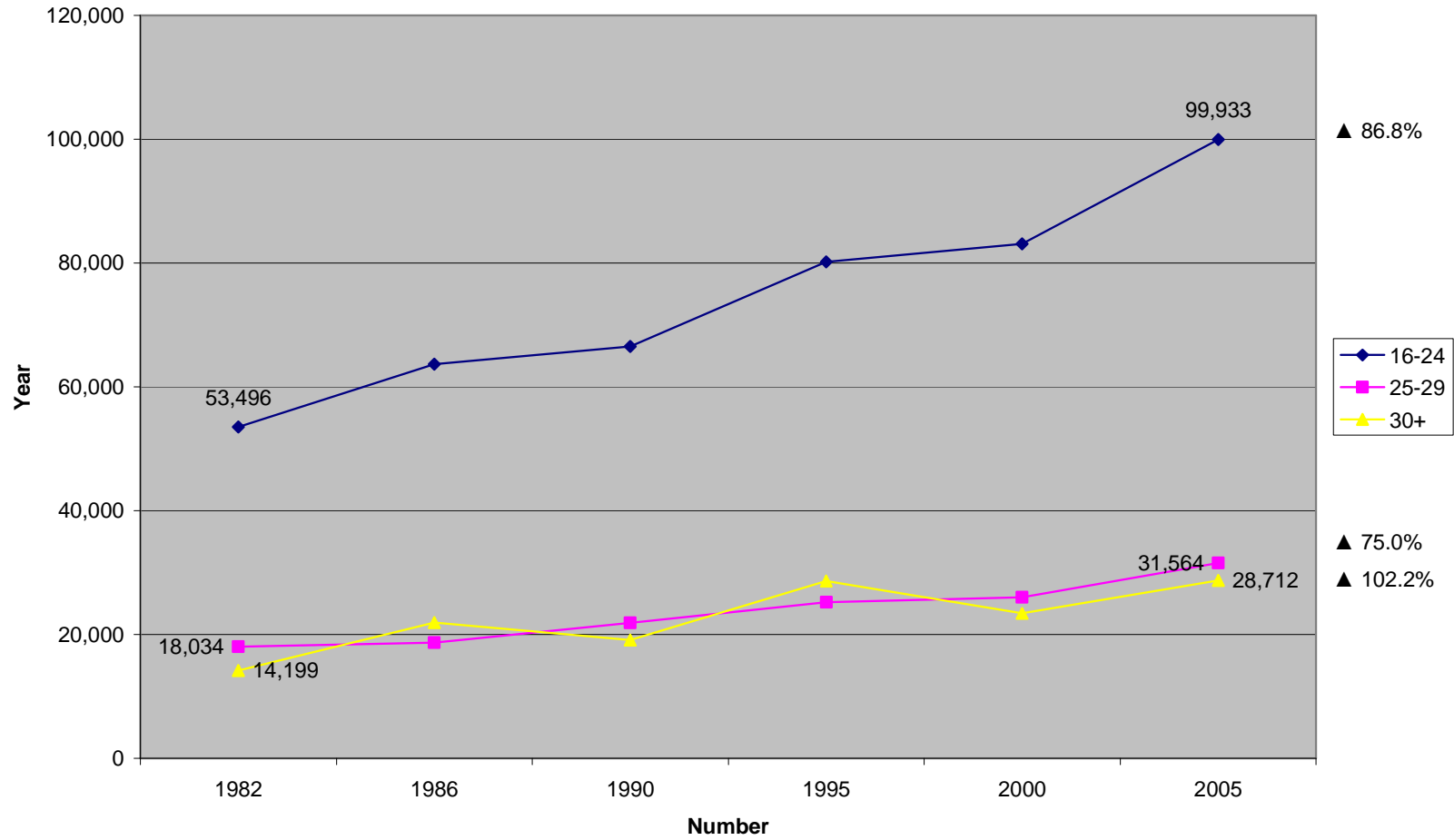


Figure 8: Number of Graduates of Undergraduate Diploma/Certificate Programs by Age Group, 1986-2005

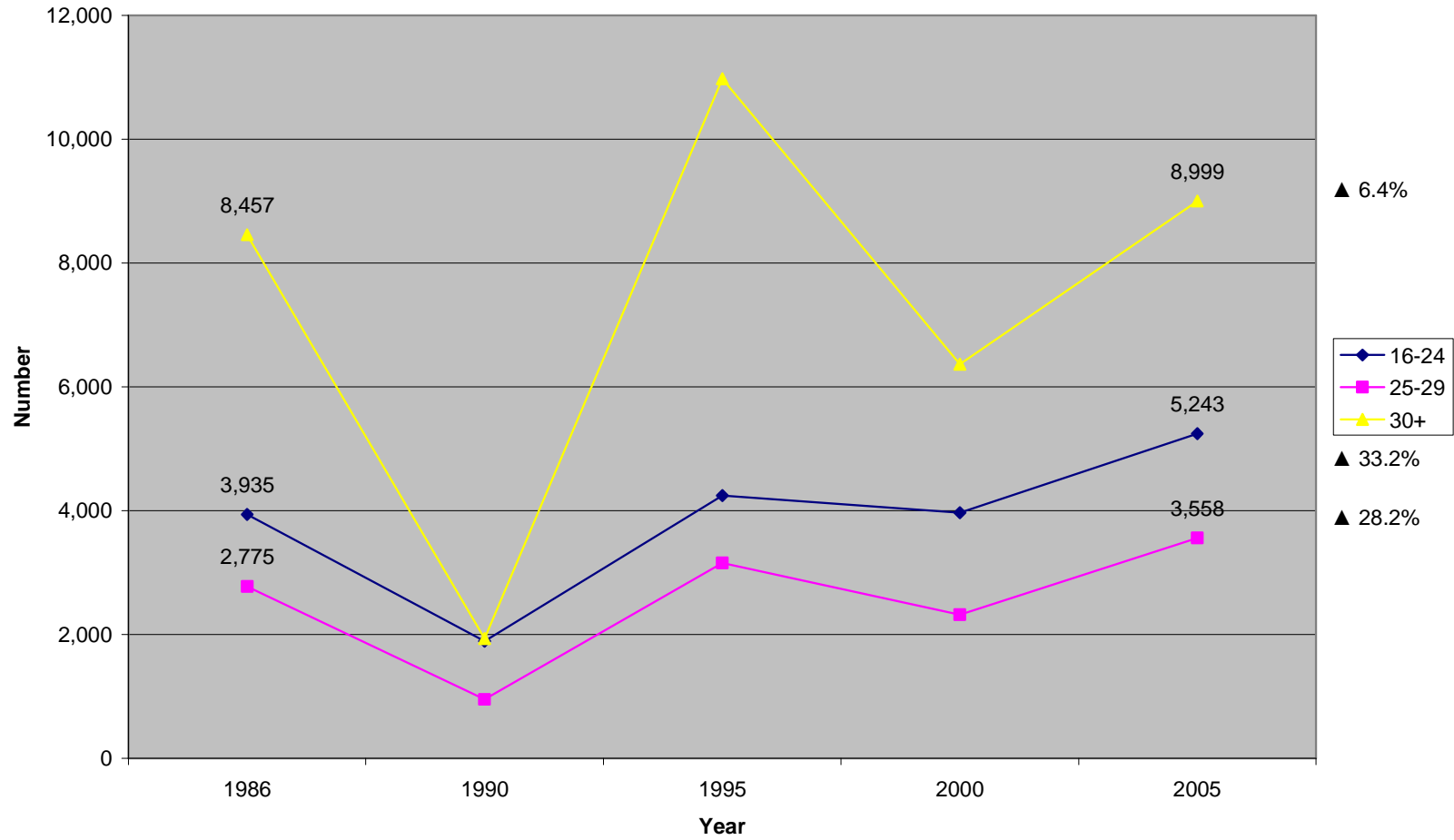


Figure 9: Number of Graduates of Bachelor Programs by Age Group, 1986-2005

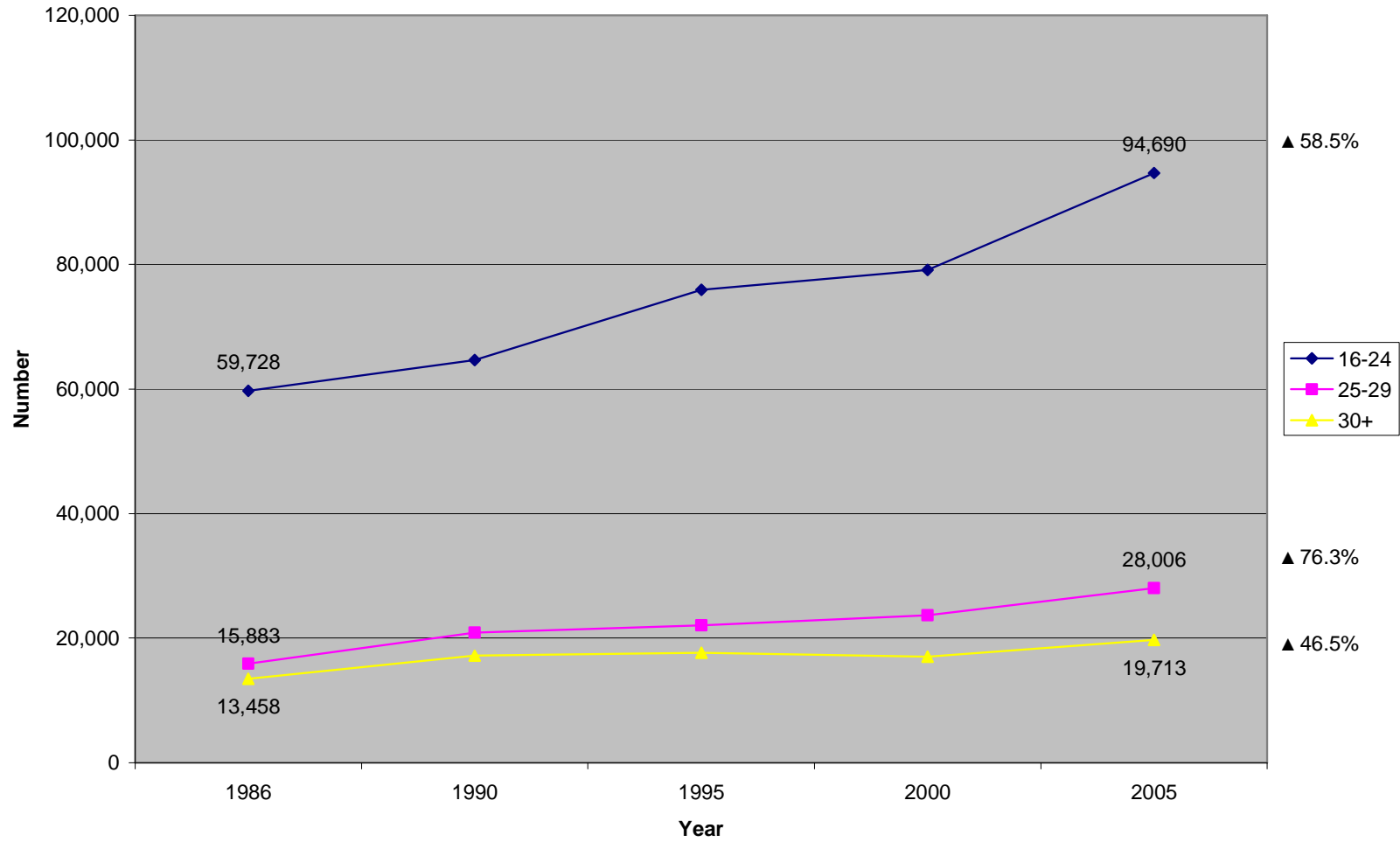


Figure 10: Number of Graduates of Master's Level University Programs by Age Group, 1982-2005

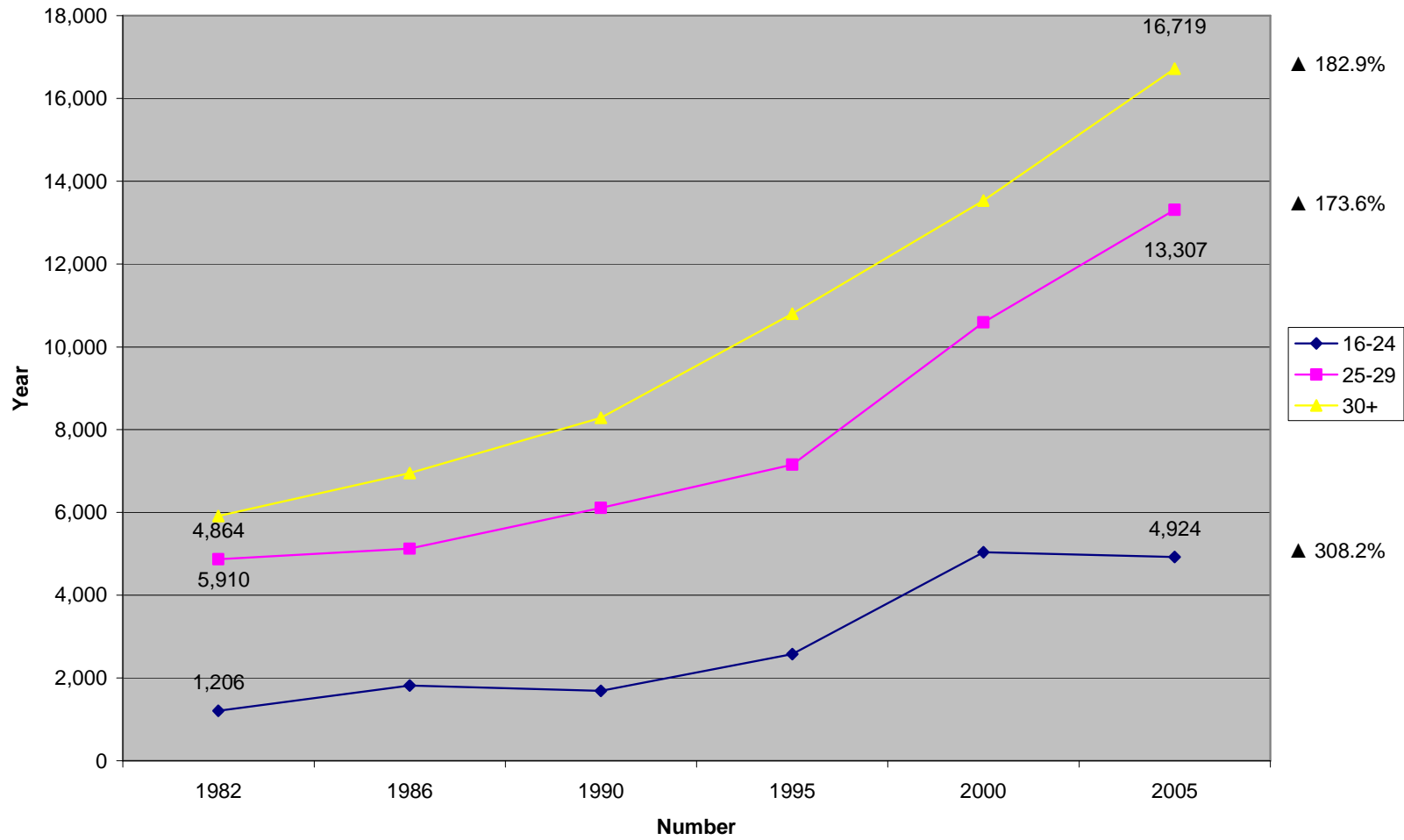


Figure 11: Number of Graduates of Graduate Diploma/Certificate Programs by Age Group, 1986-2005

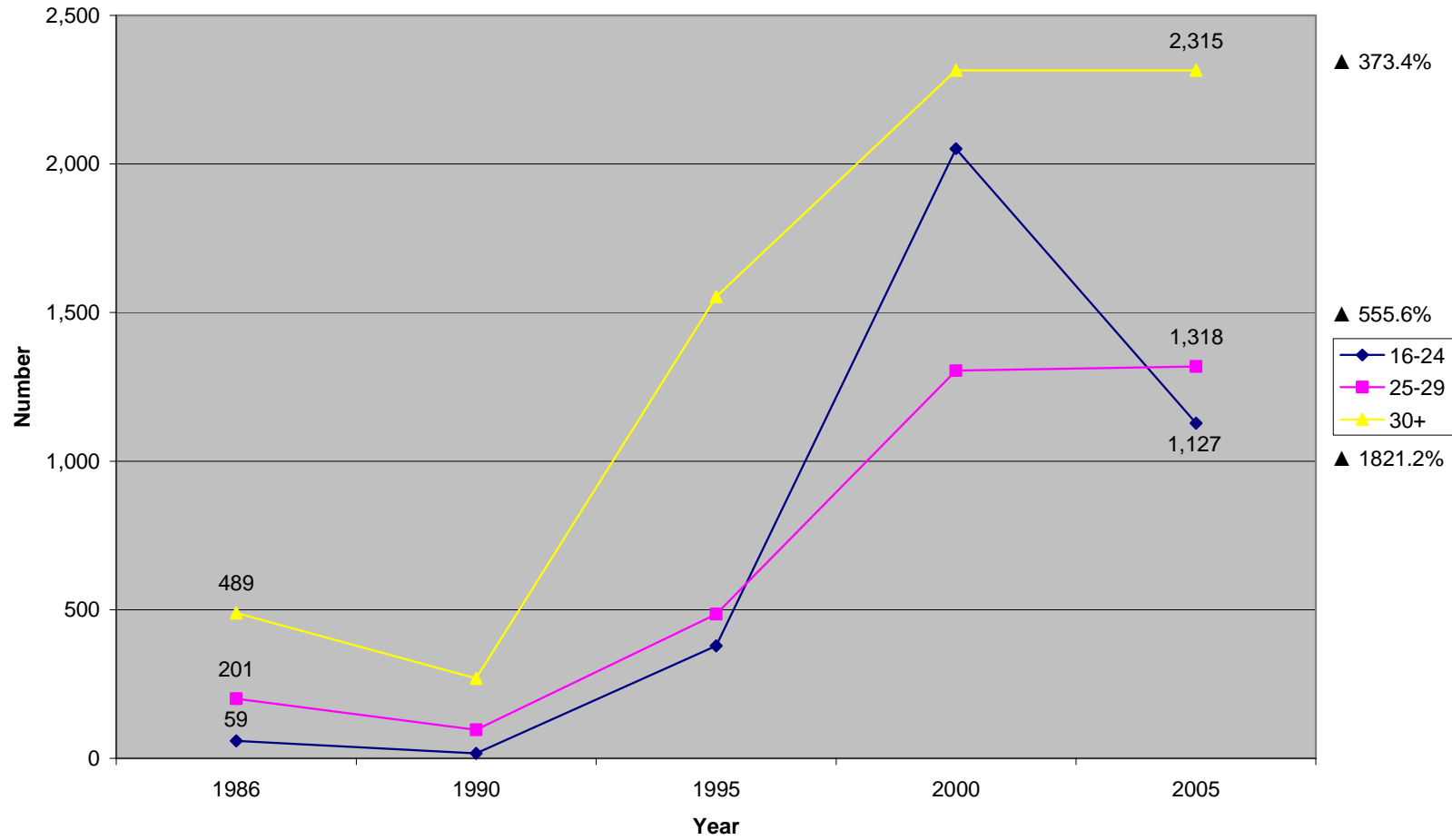


Figure 12: Number of Graduates of Masters Programs by Age Group, 1986-2005

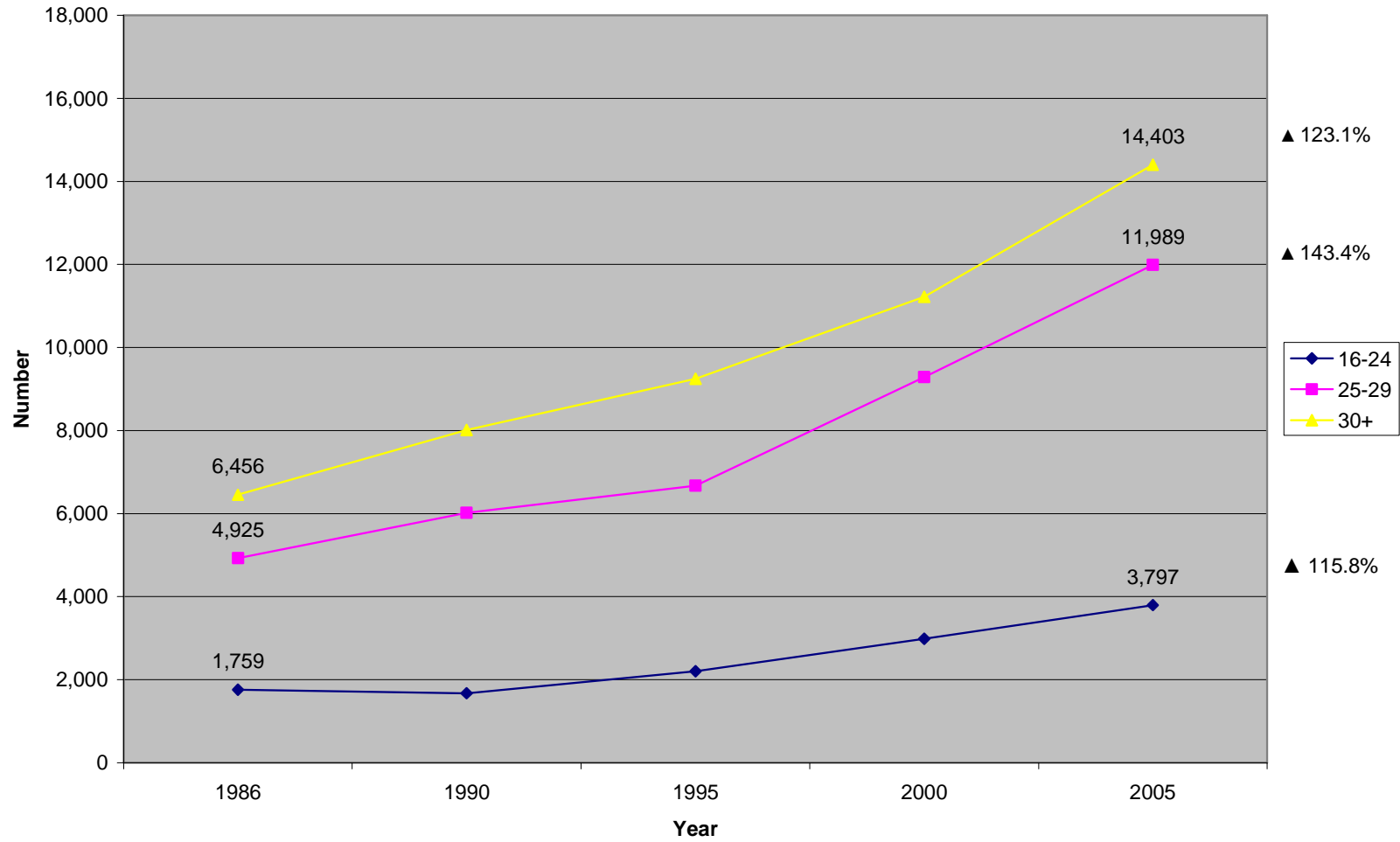


Figure 13: Number of Graduates of Doctoral University Programs by Age Group, 1982-2005

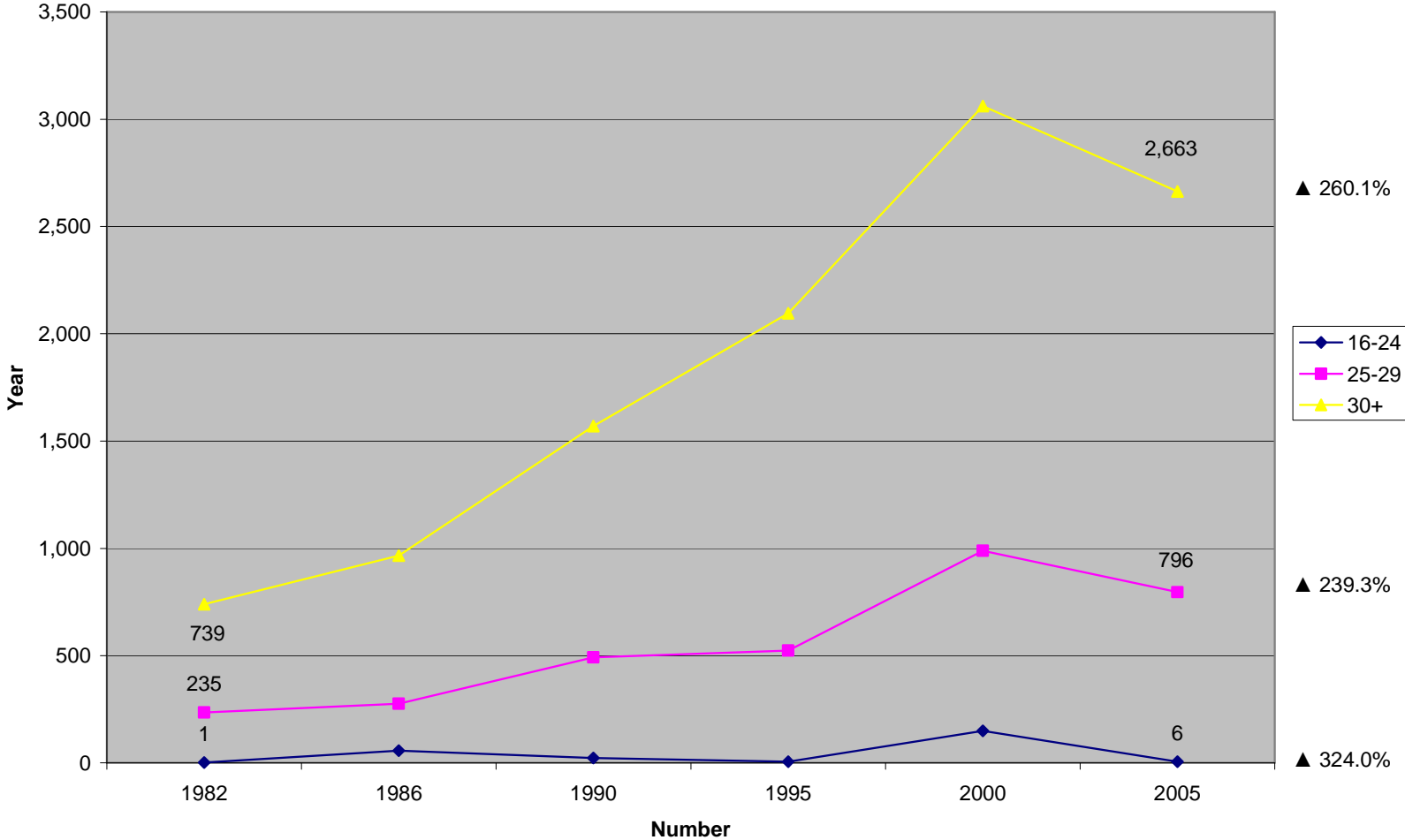


Figure 14: Highest Educational Attainment Before Enrolment Among Trade Graduates (16-24)

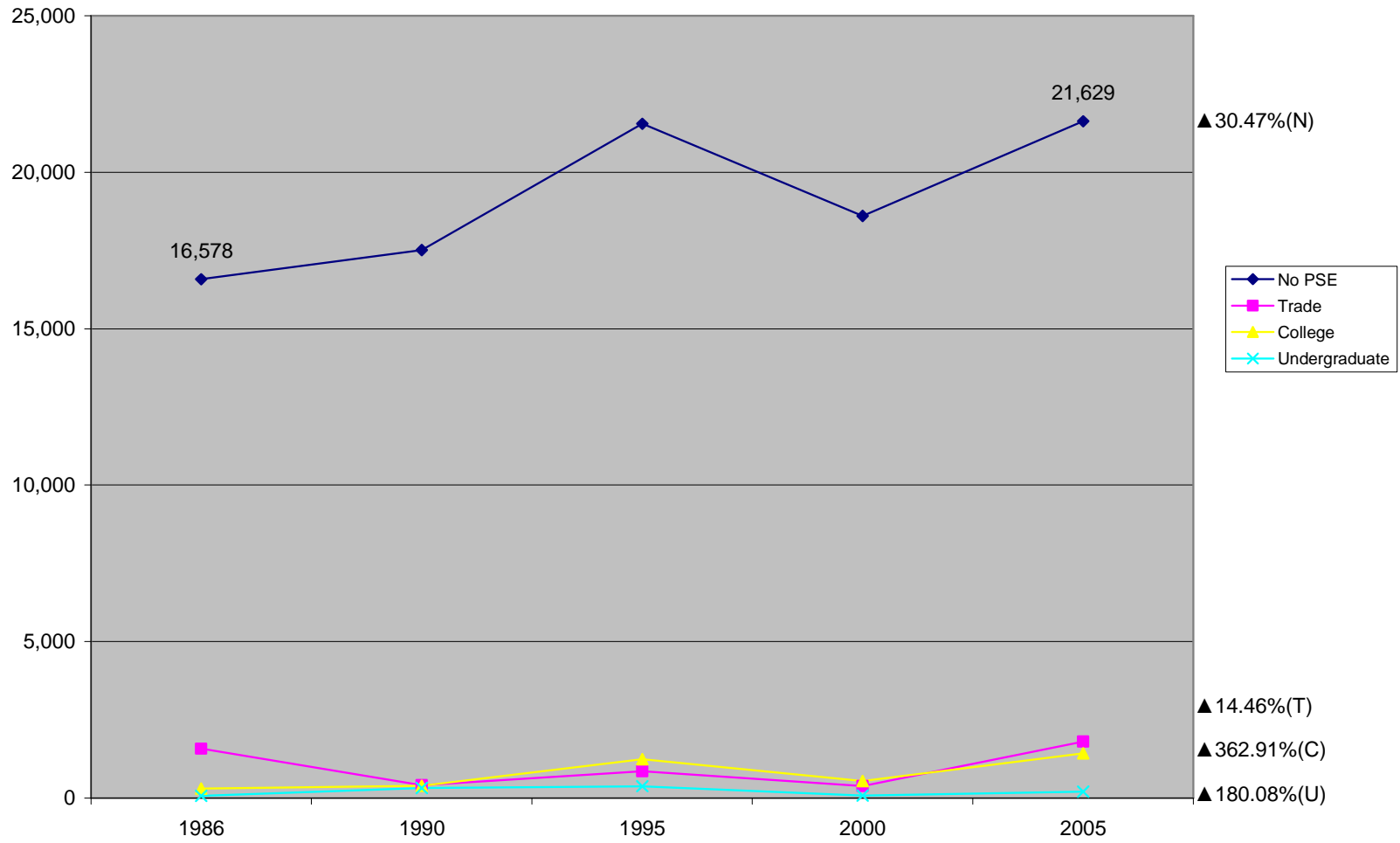


Figure 15: Highest Educational Attainment Before Enrolment Among Trade Graduates (25-29)

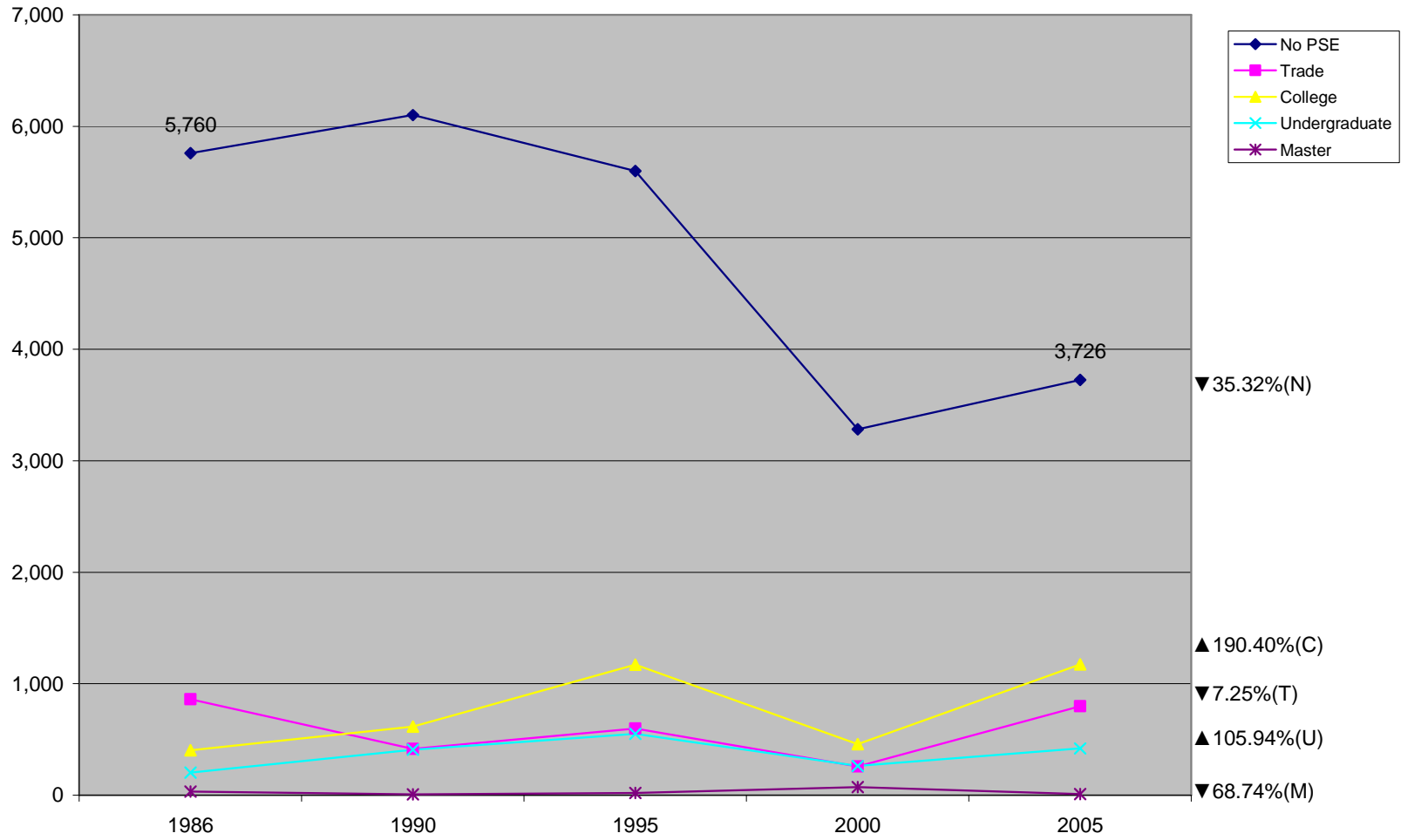


Figure 16: Highest Educational Attainment Before Enrolment Among Trade Graduates (30+)

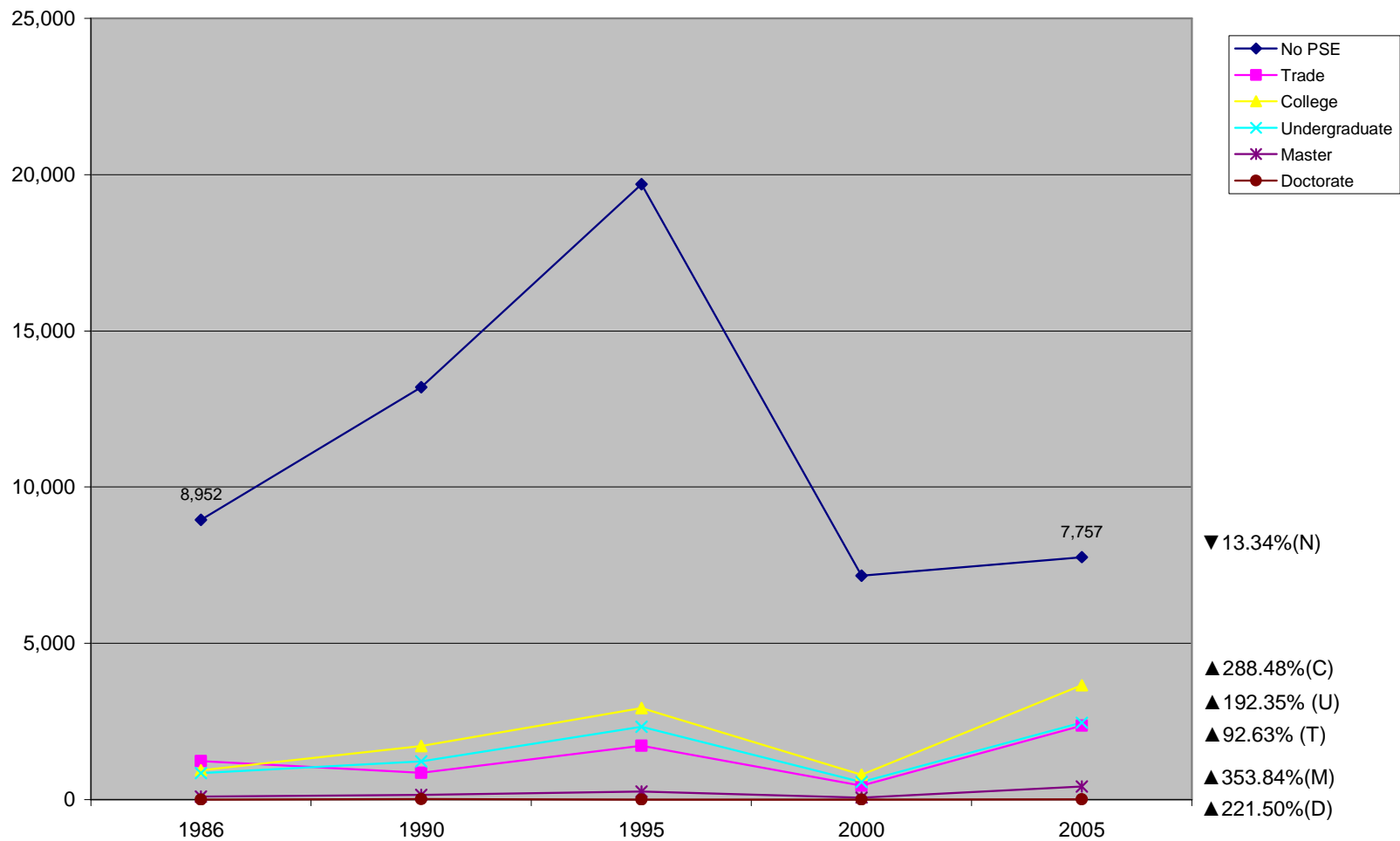


Figure 17: Highest Educational Attainment Before Enrolment Among College Graduates (16-24)

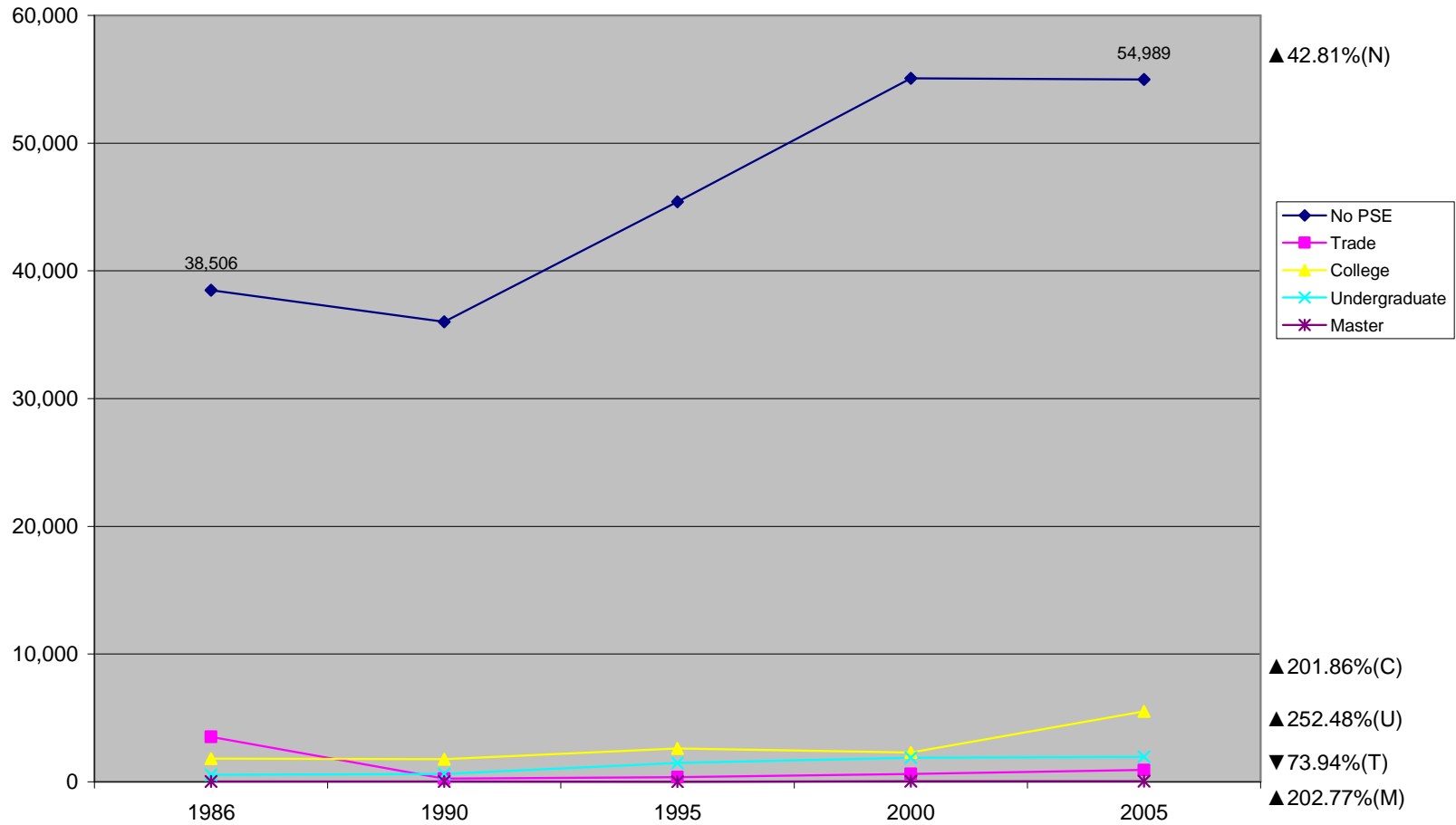


Figure 18: Highest Educational Attainment Before Enrolment Among College Graduates (25-29)

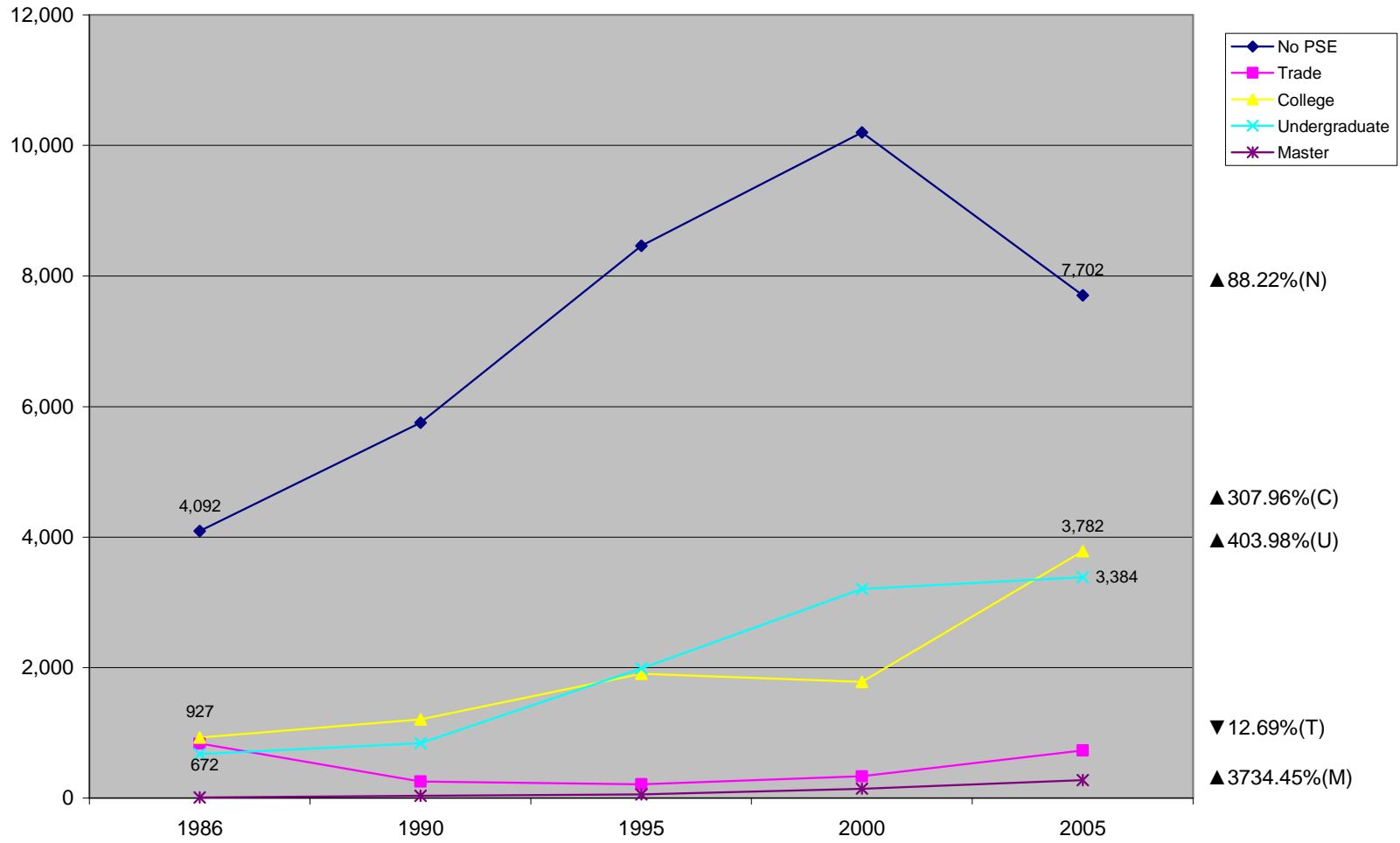


Figure 19: Highest Educational Attainment Before Enrolment Among College Graduates (30+)

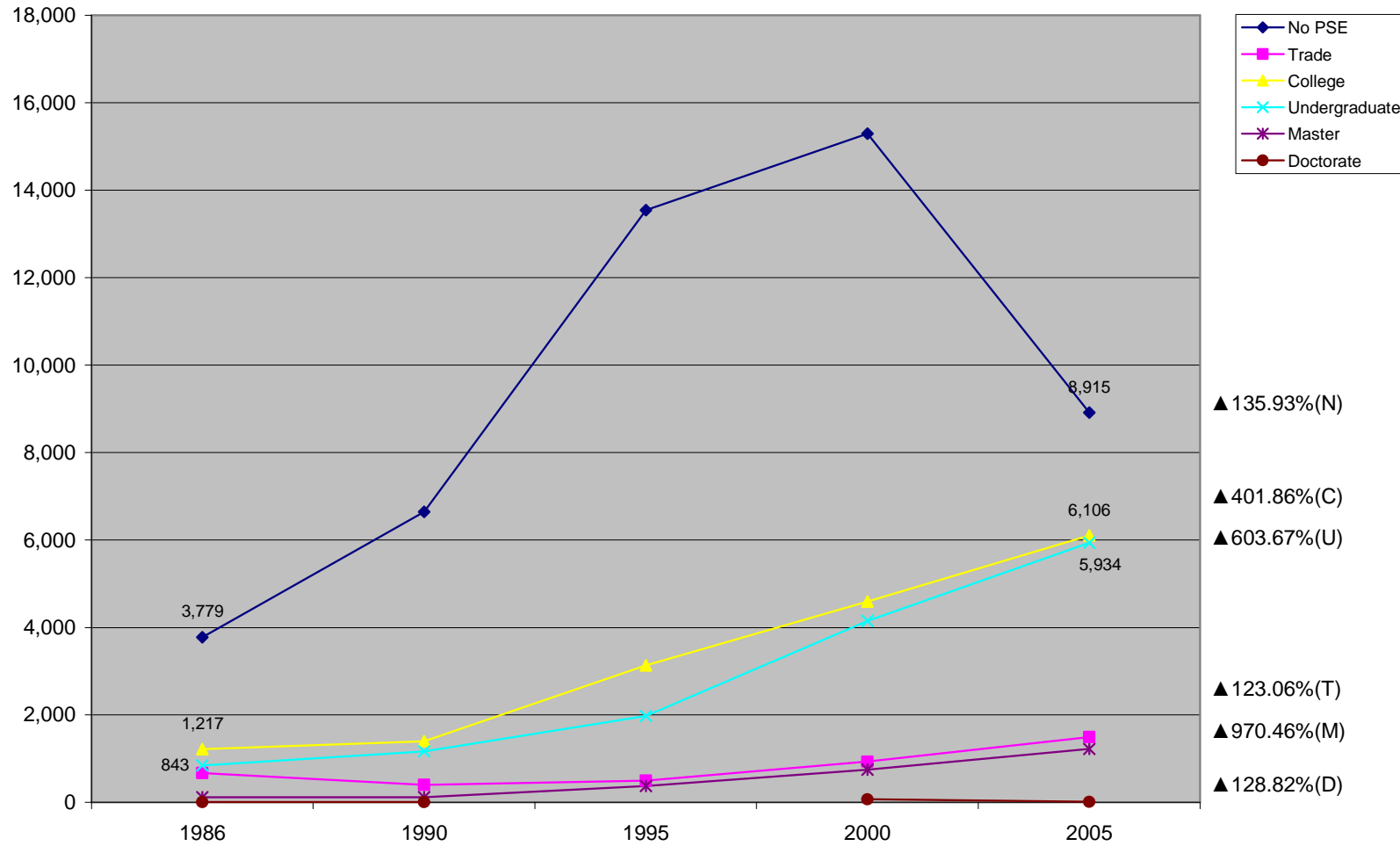


Figure 20: Highest education attainment before enrolment among Bachelor graduates (16-24)

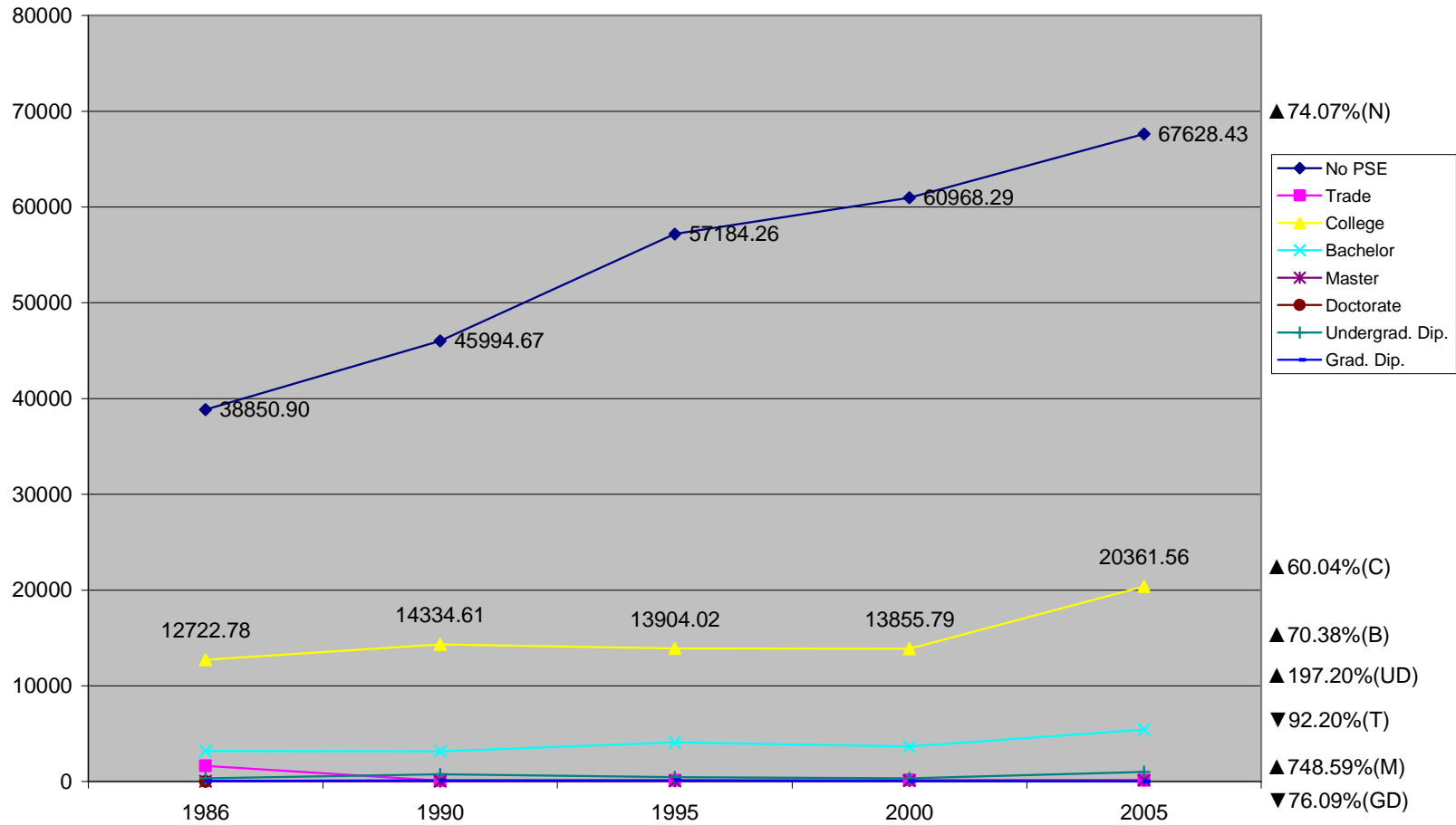


Figure 21: Highest education attainment before enrolment among Bachelor graduates (25-29)

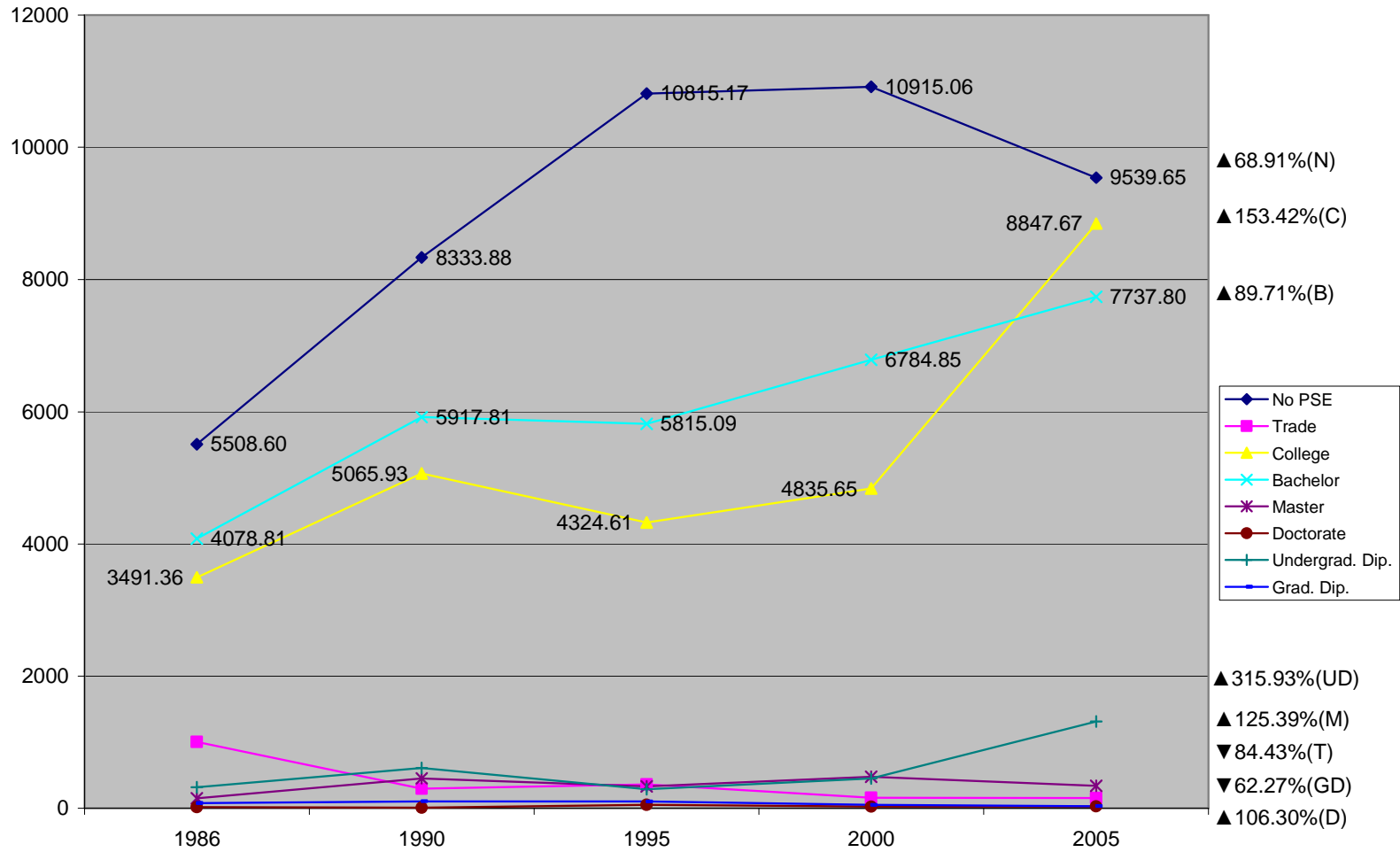


Figure 22: Highest education attainment before enrolment among Bachelor graduates (30+)

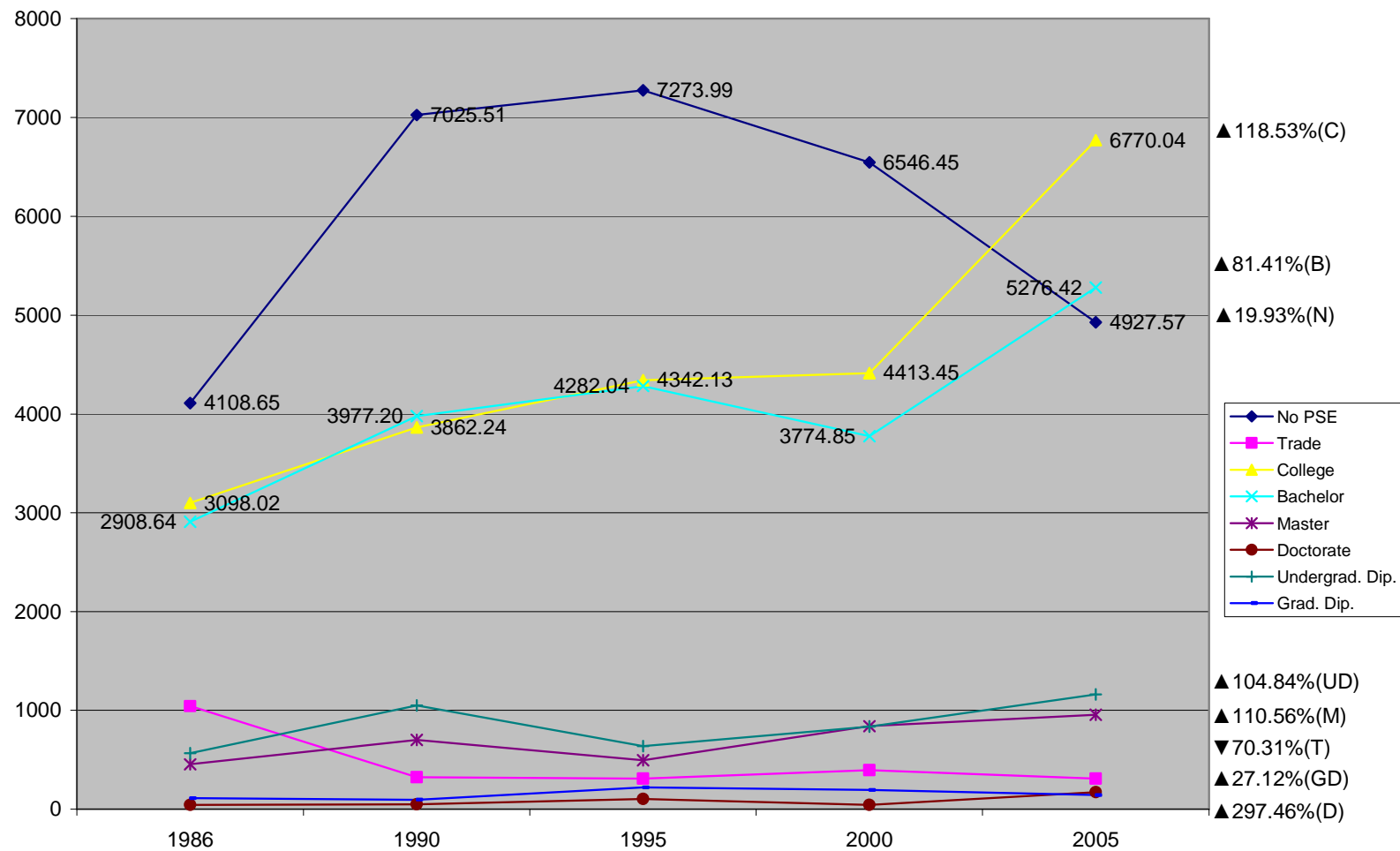


Figure 23: Highest education attainment before enrolment among Master graduates (16-24)

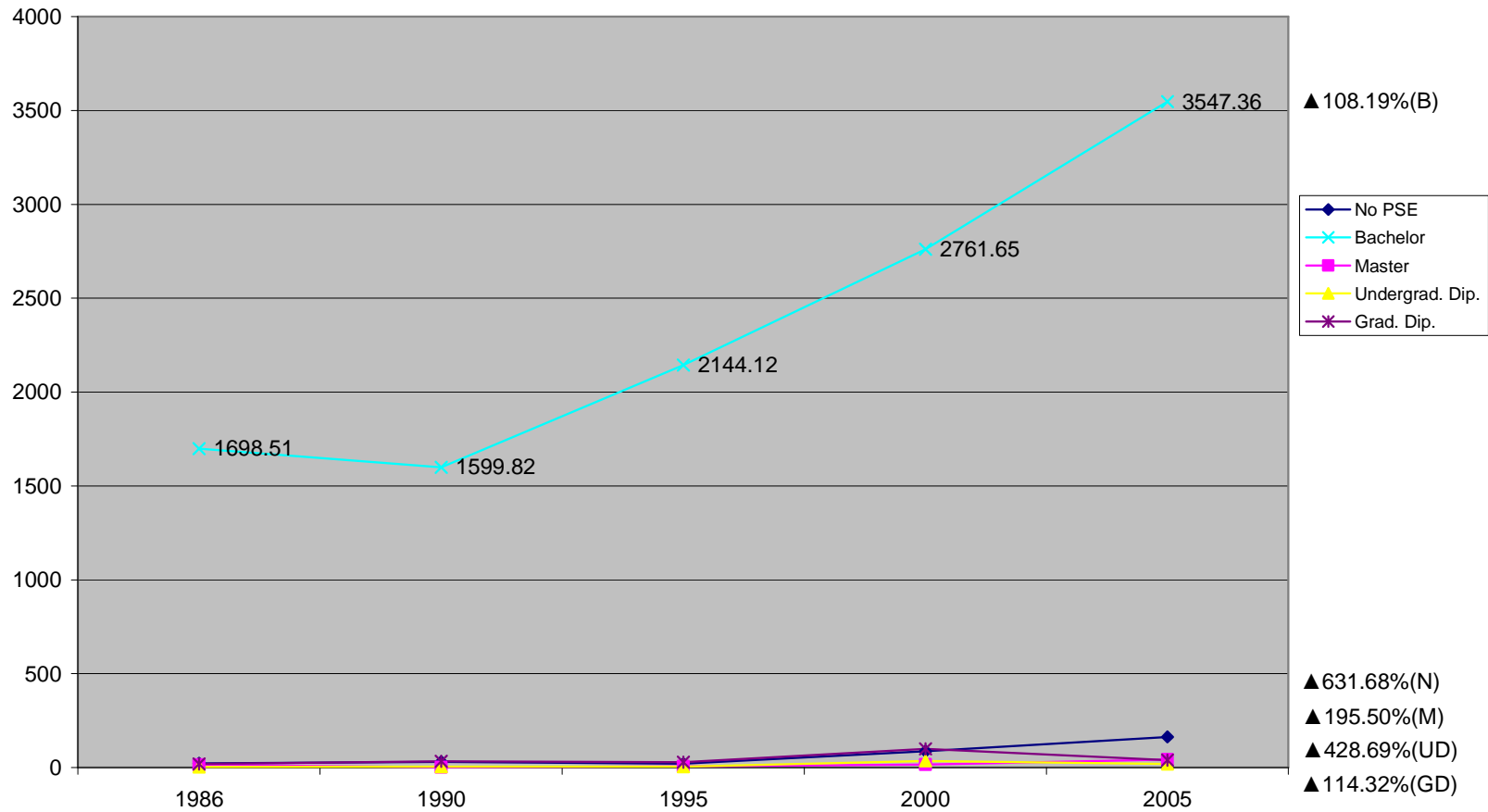


Figure 24: Highest education attainment before enrolment among Master graduates (25-29)

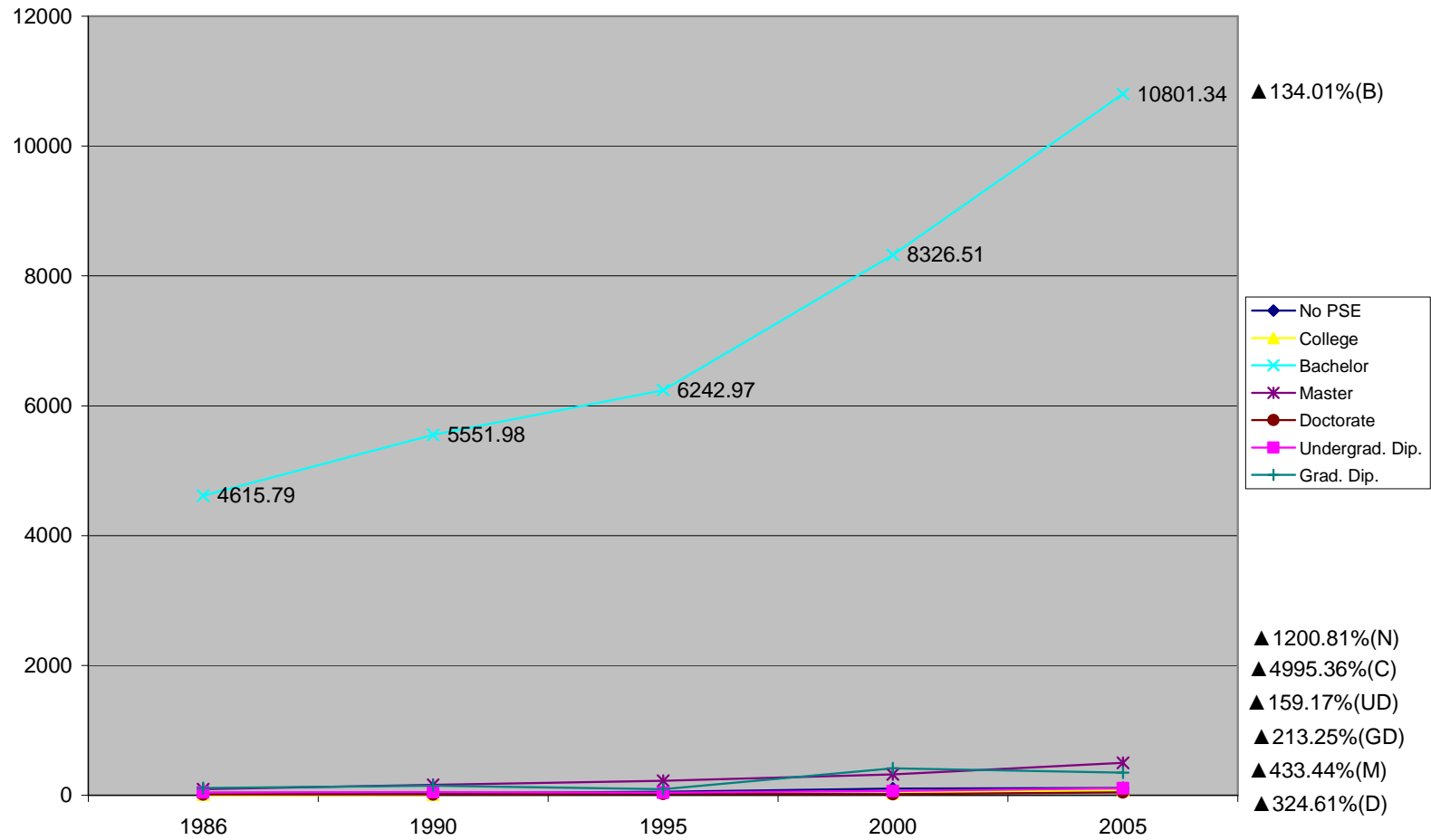


Figure 25: Highest education attainment before enrolment among Master graduates (30+)

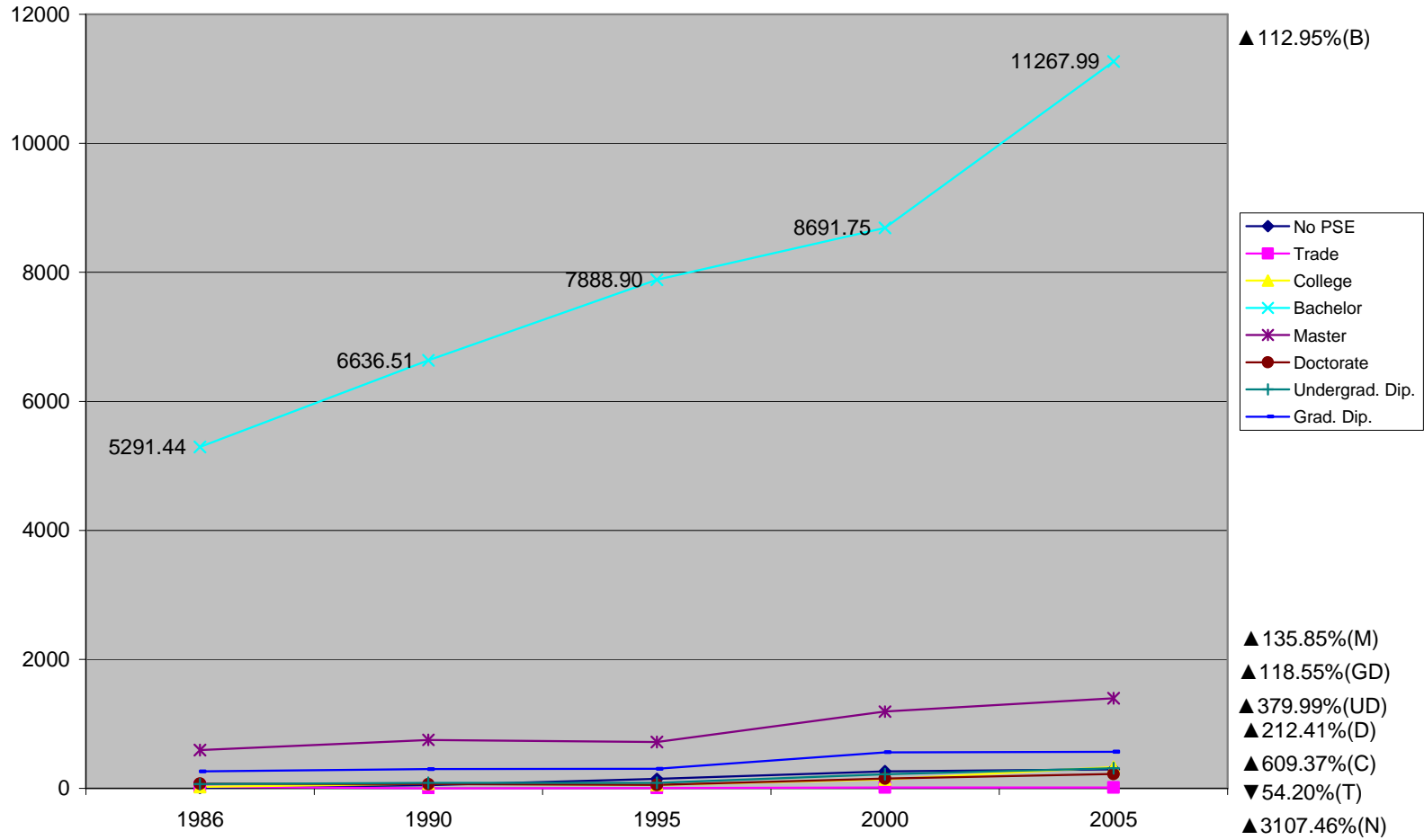


Figure 26: Highest education attainment before enrolment among Doctorate graduates (16-24)

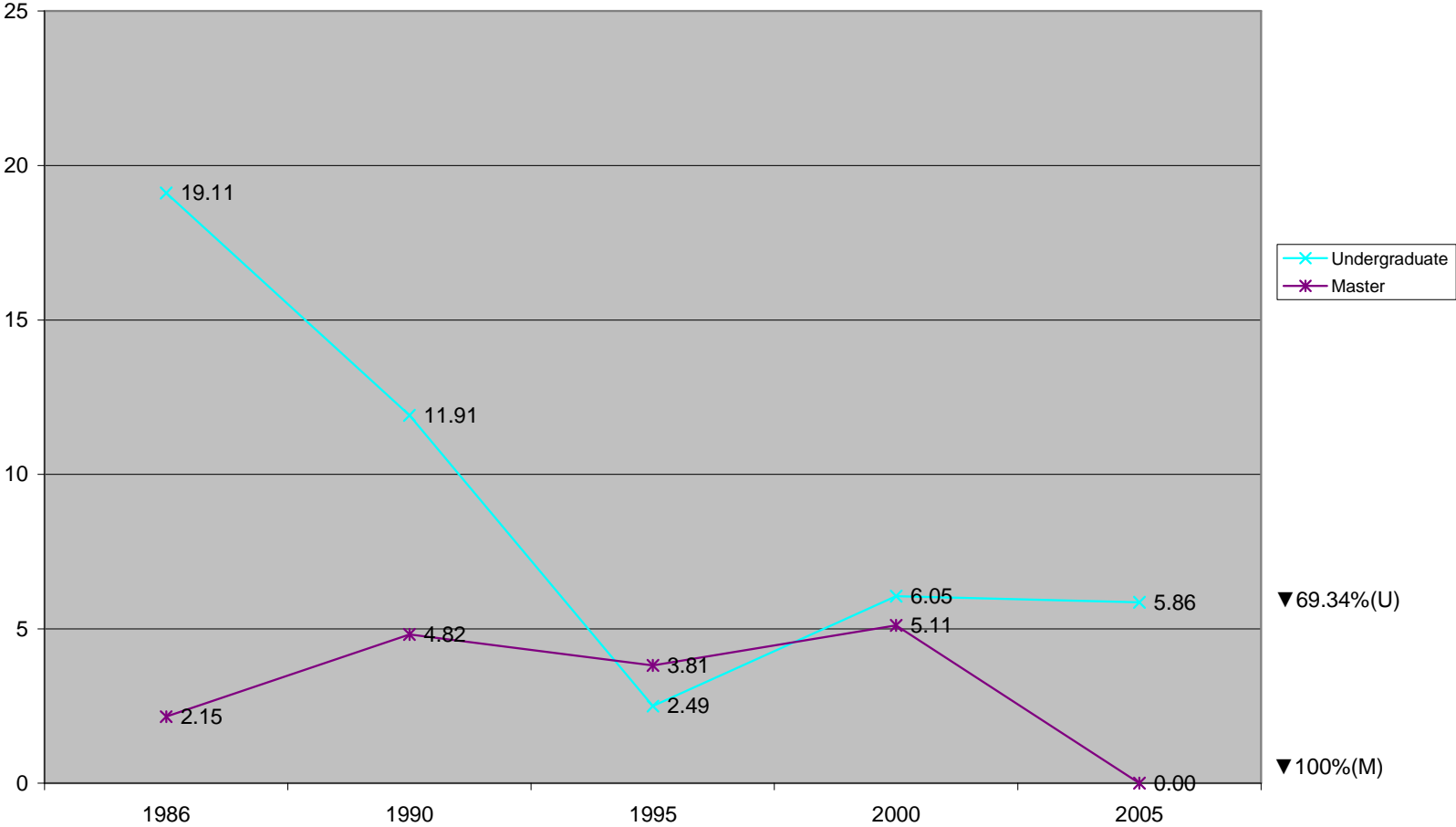


Figure 27: Highest education attainment before enrolment among Doctorate graduates (25-29)



Figure 28: Highest education attainment before enrolment among Doctorate graduates (30+)

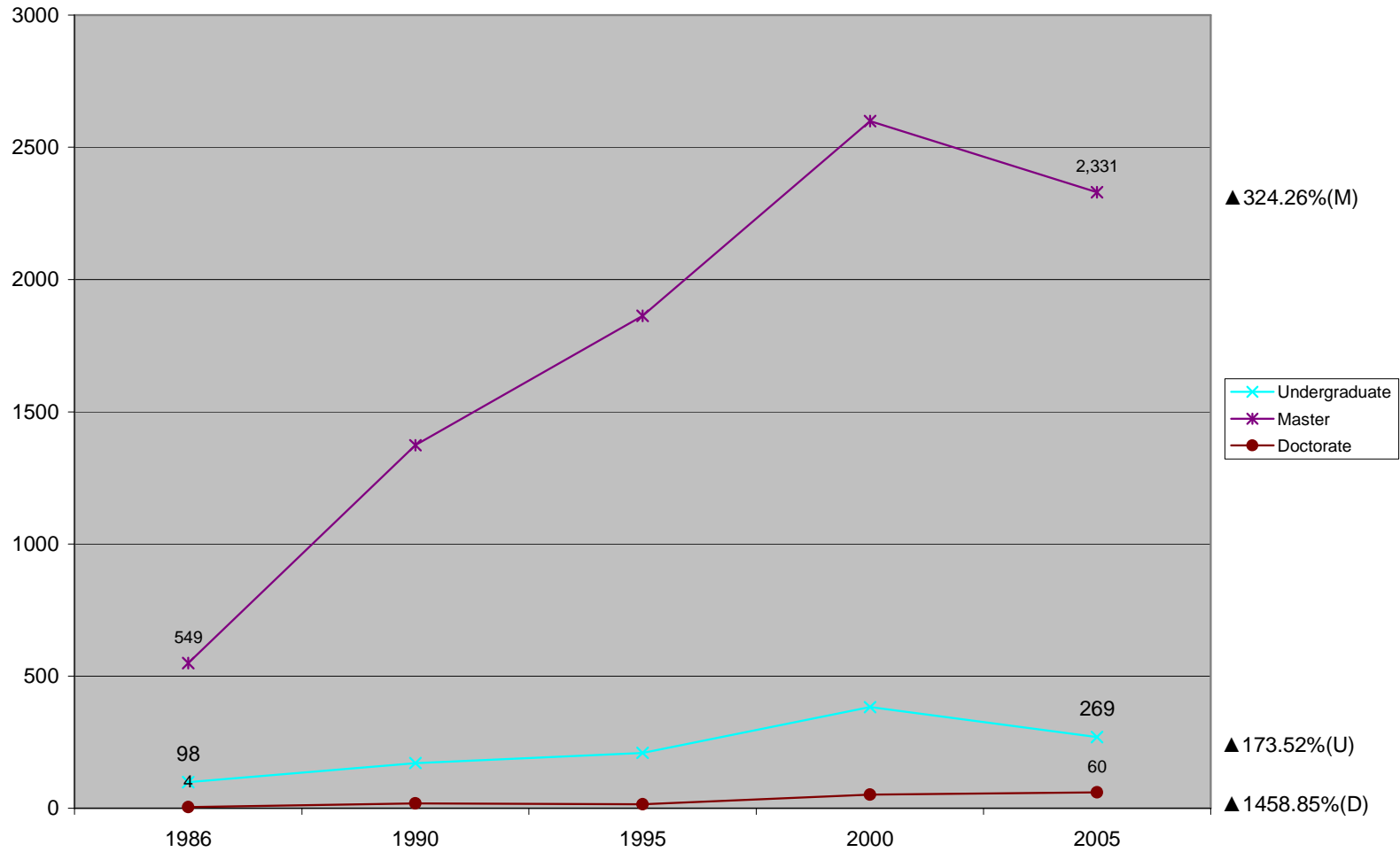


Figure 29: Time of completion among Trade graduates (16-24)

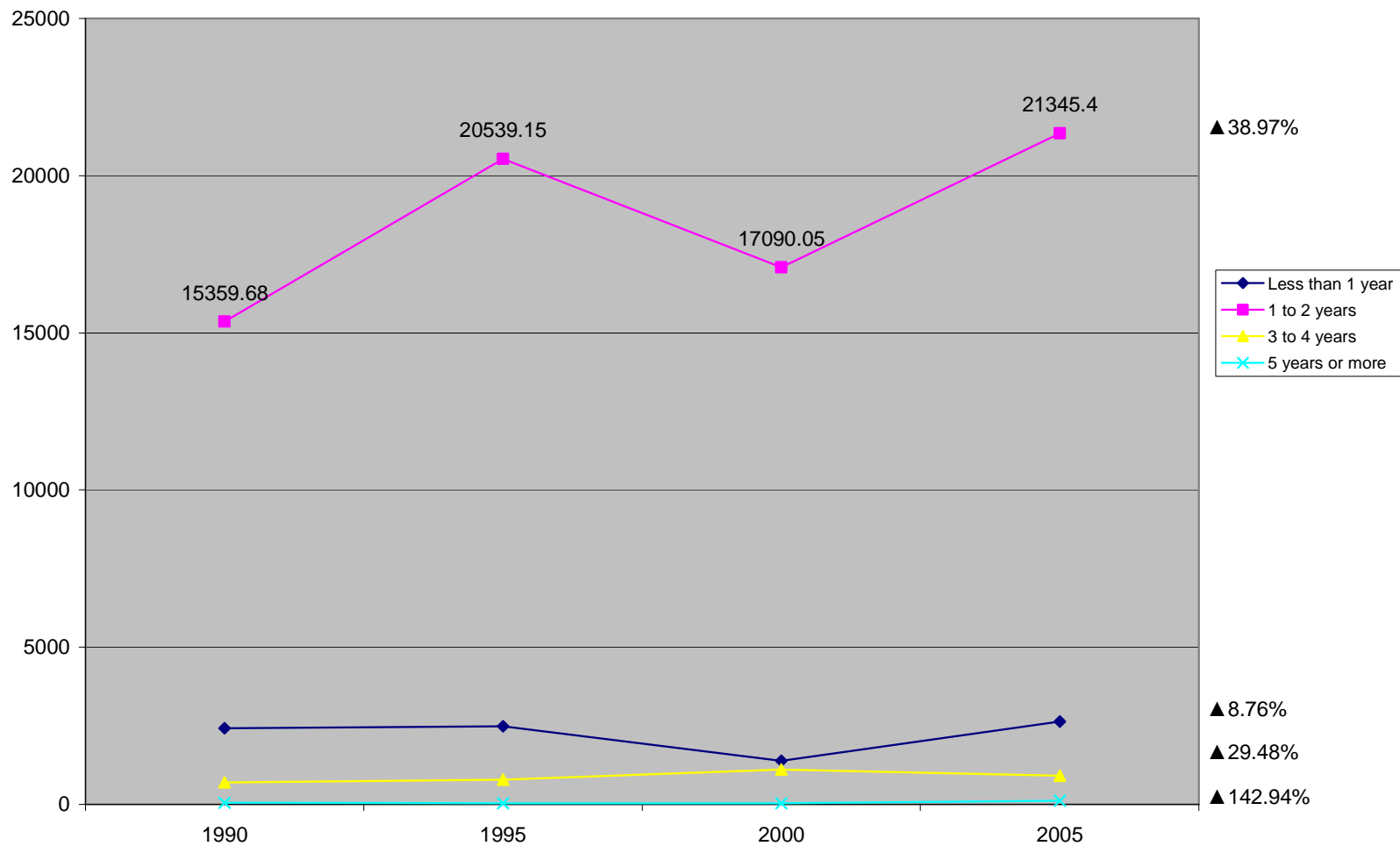


Figure 30: Time to completion among Trade graduates (25-29)

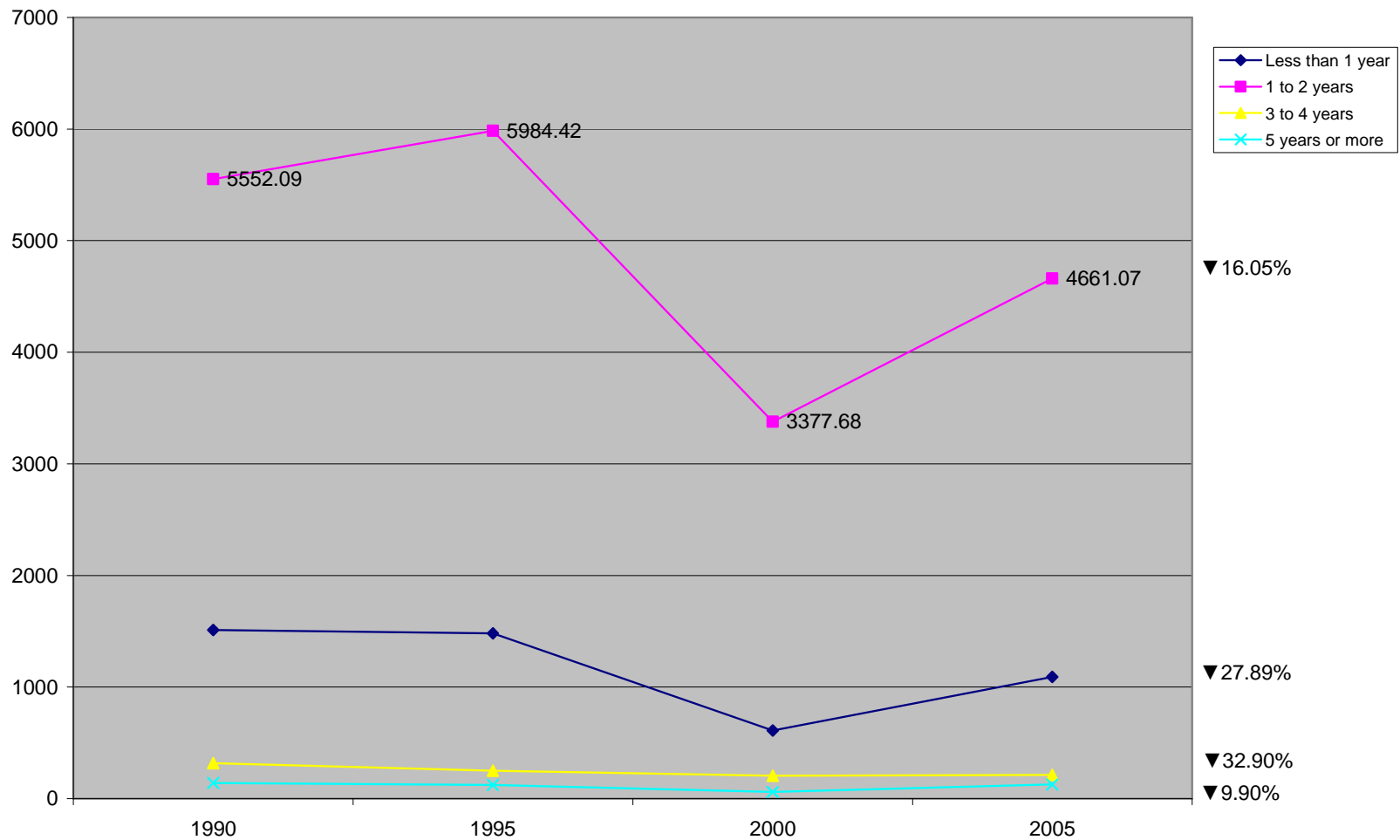


Figure 31: Time to completion among Trade graduates (30+)

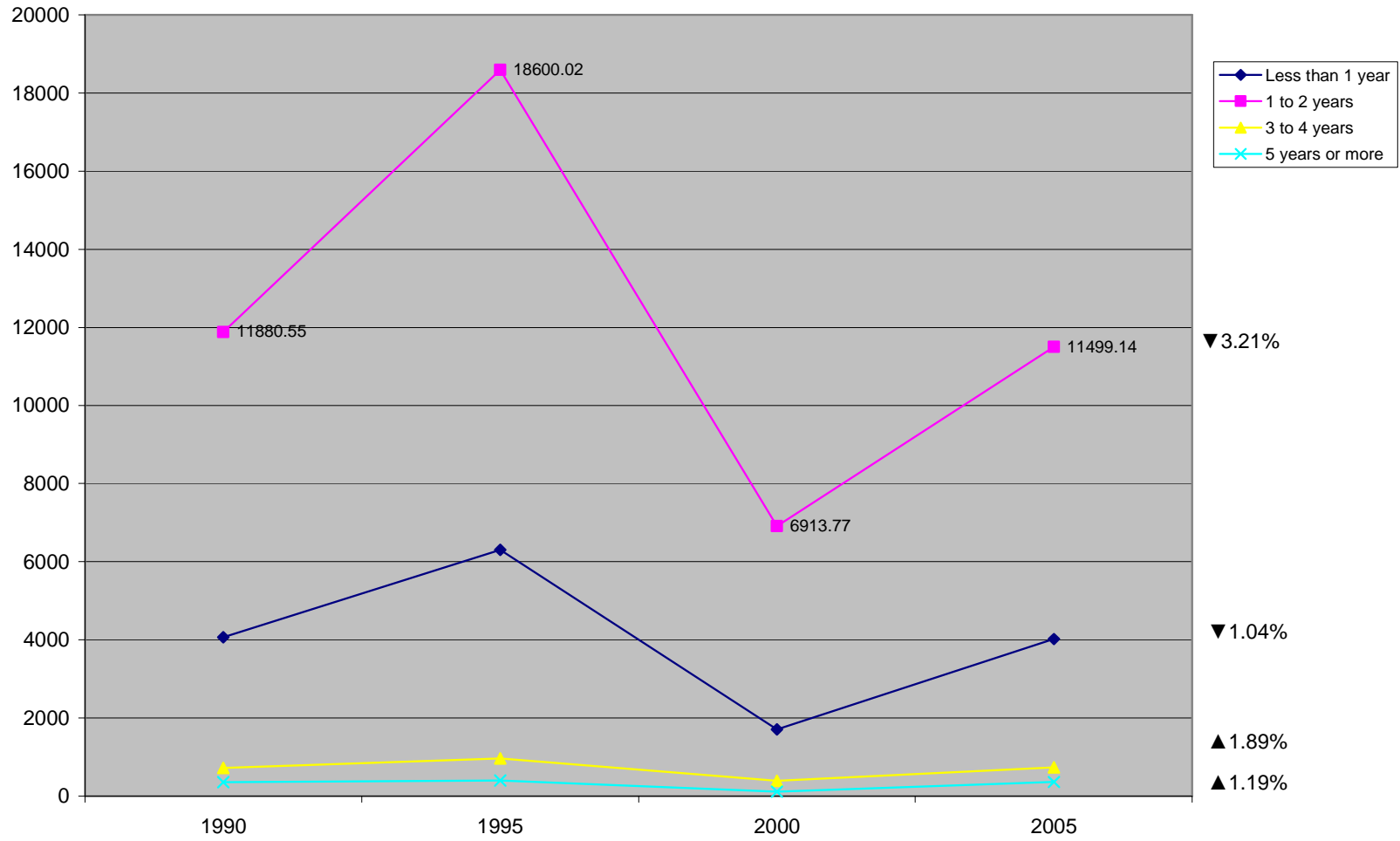


Figure 32: Time of completion among College graduates (16-24)

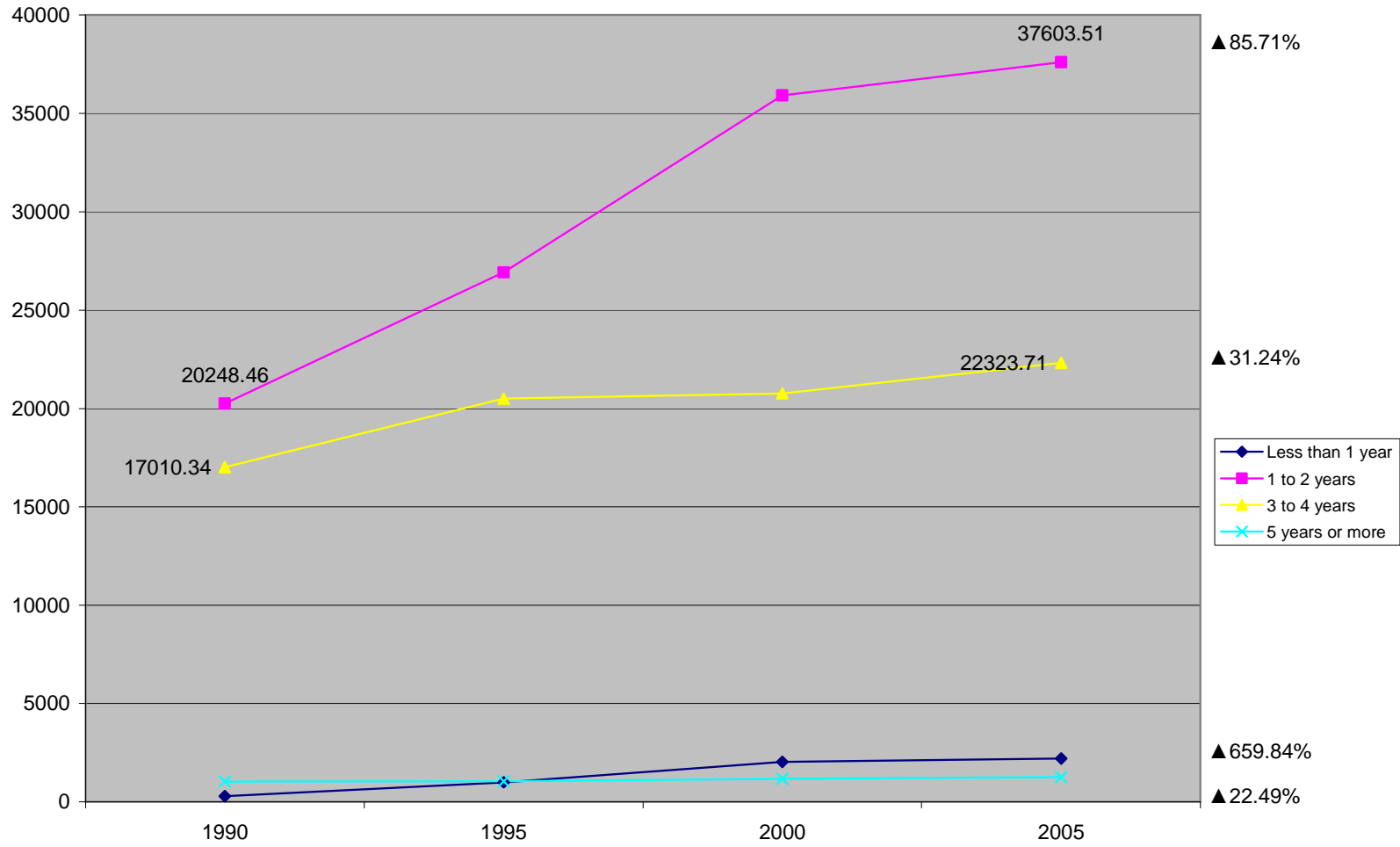


Figure 33: Time to completion among College graduates (25-29)

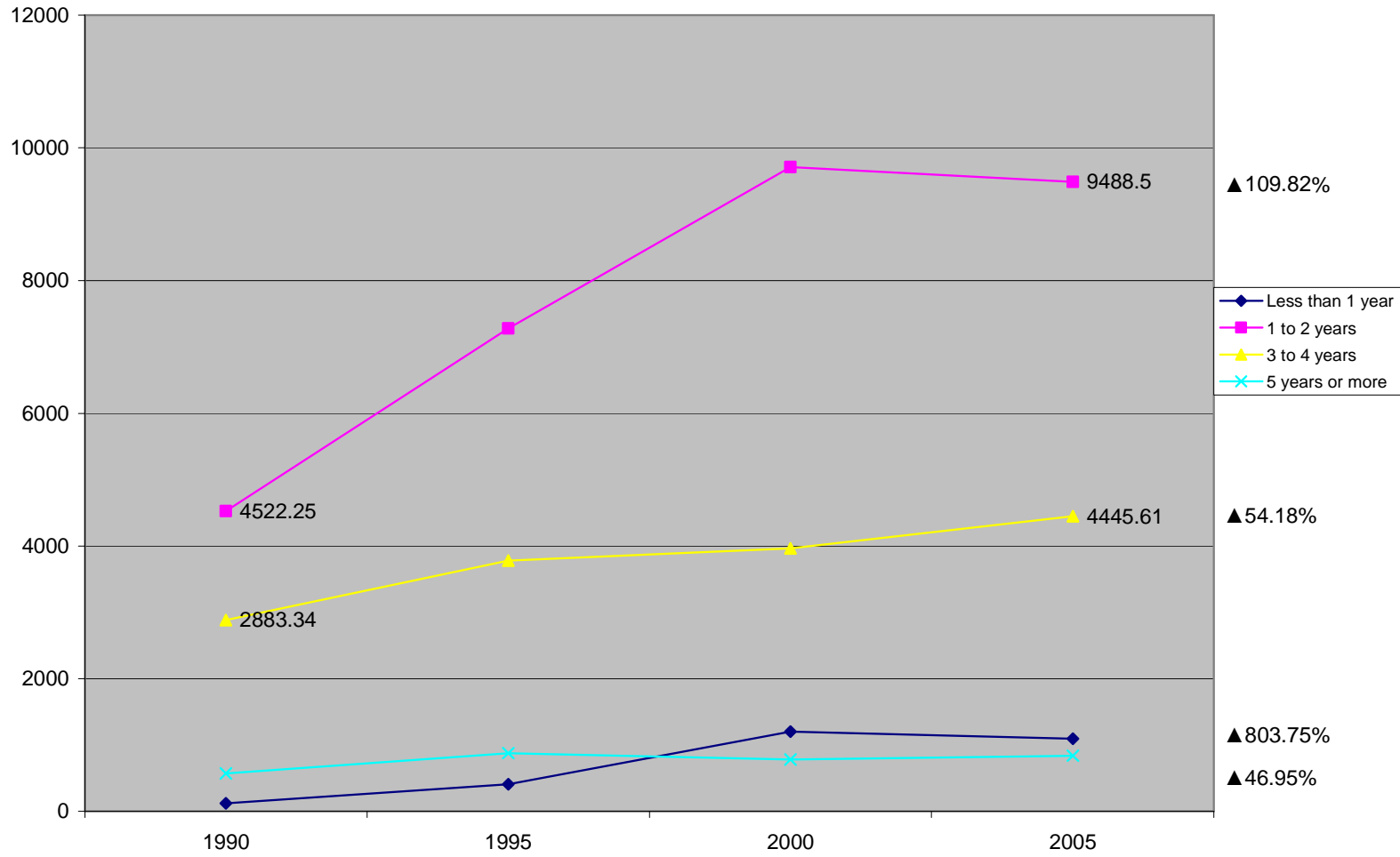


Figure 34: Time to completion among College graduates (30+)

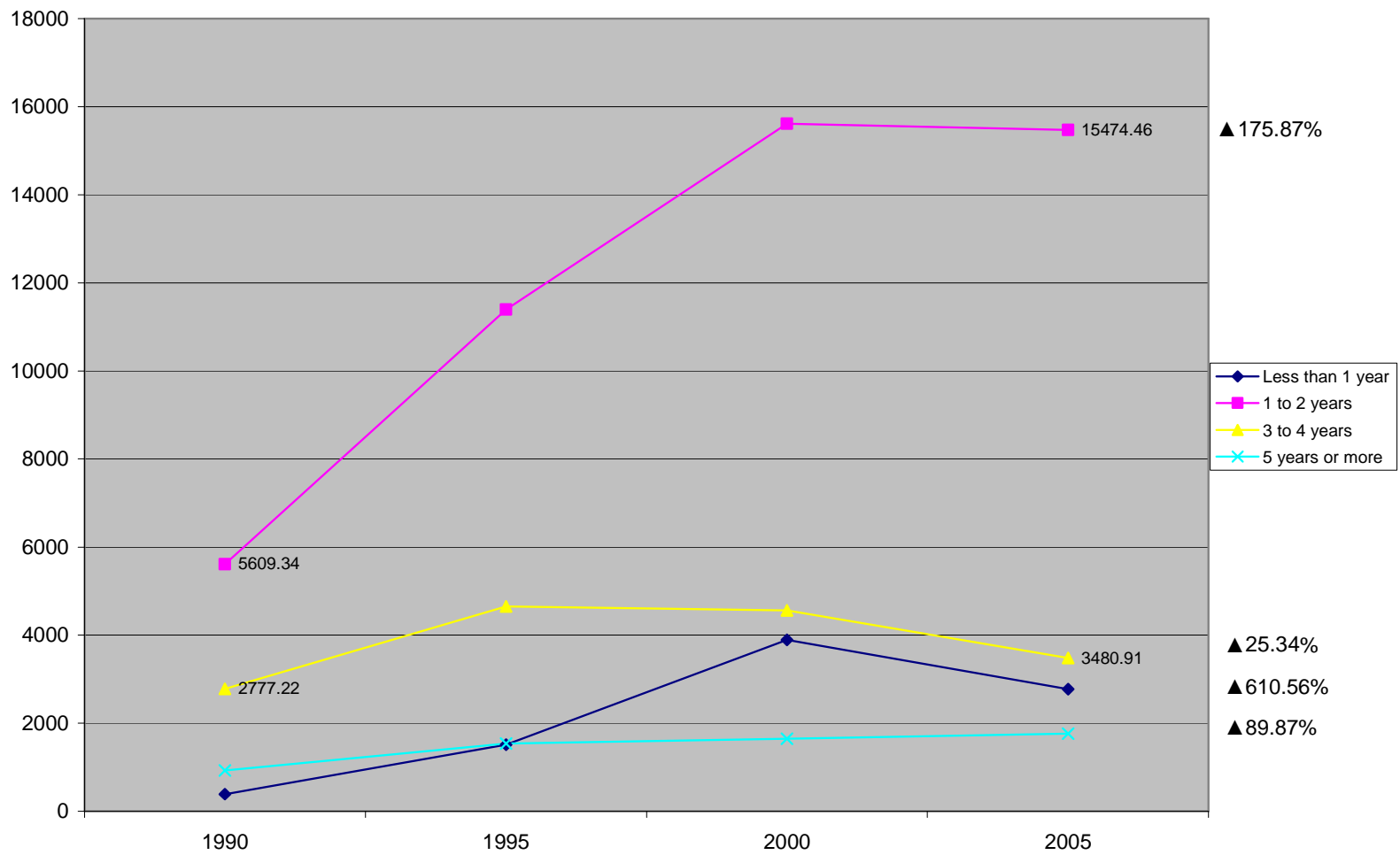


Figure 35: Time of completion among Undergraduate graduates (16-24)

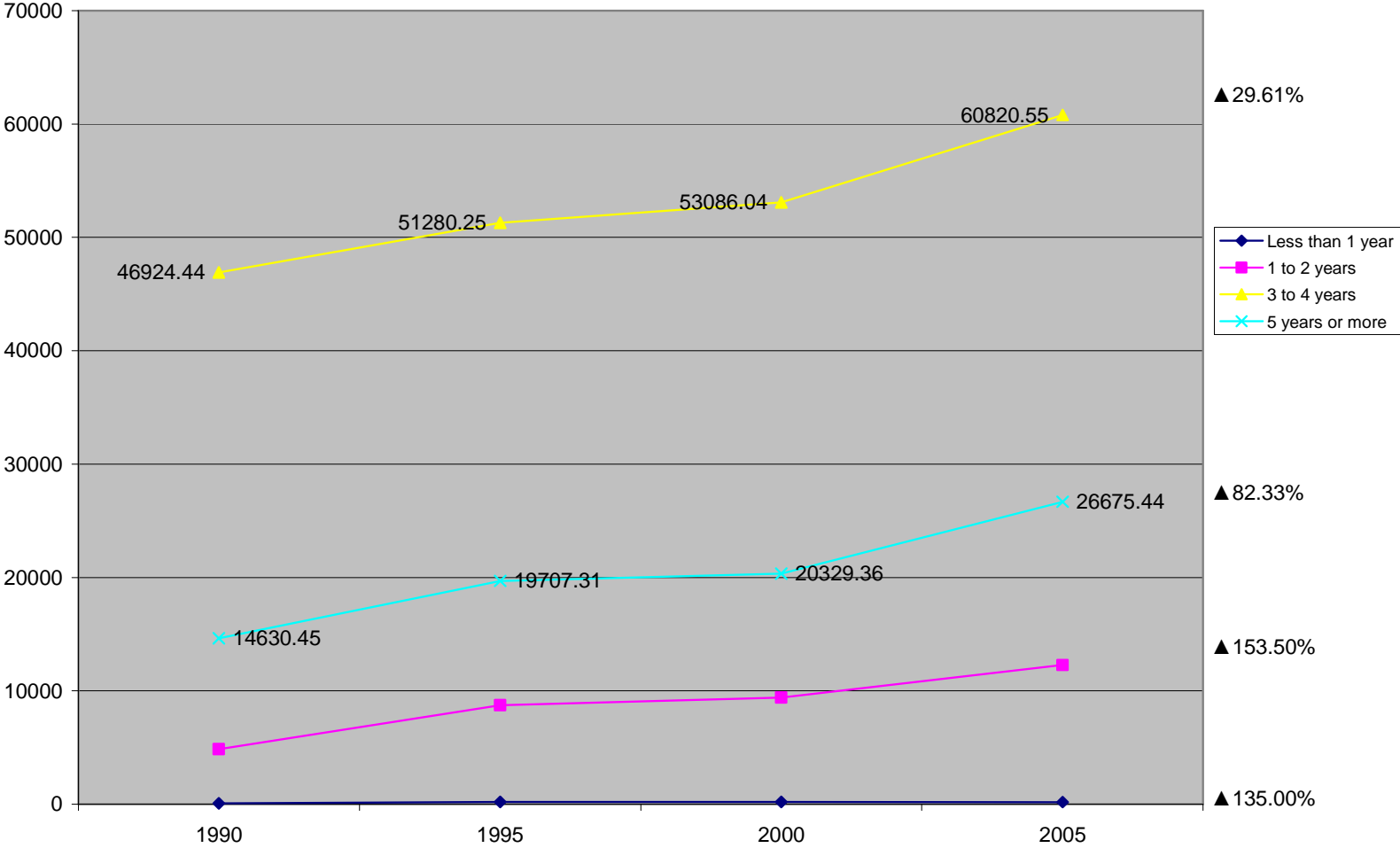


Figure 36: Time to completion among Undergraduate graduates (25-29)

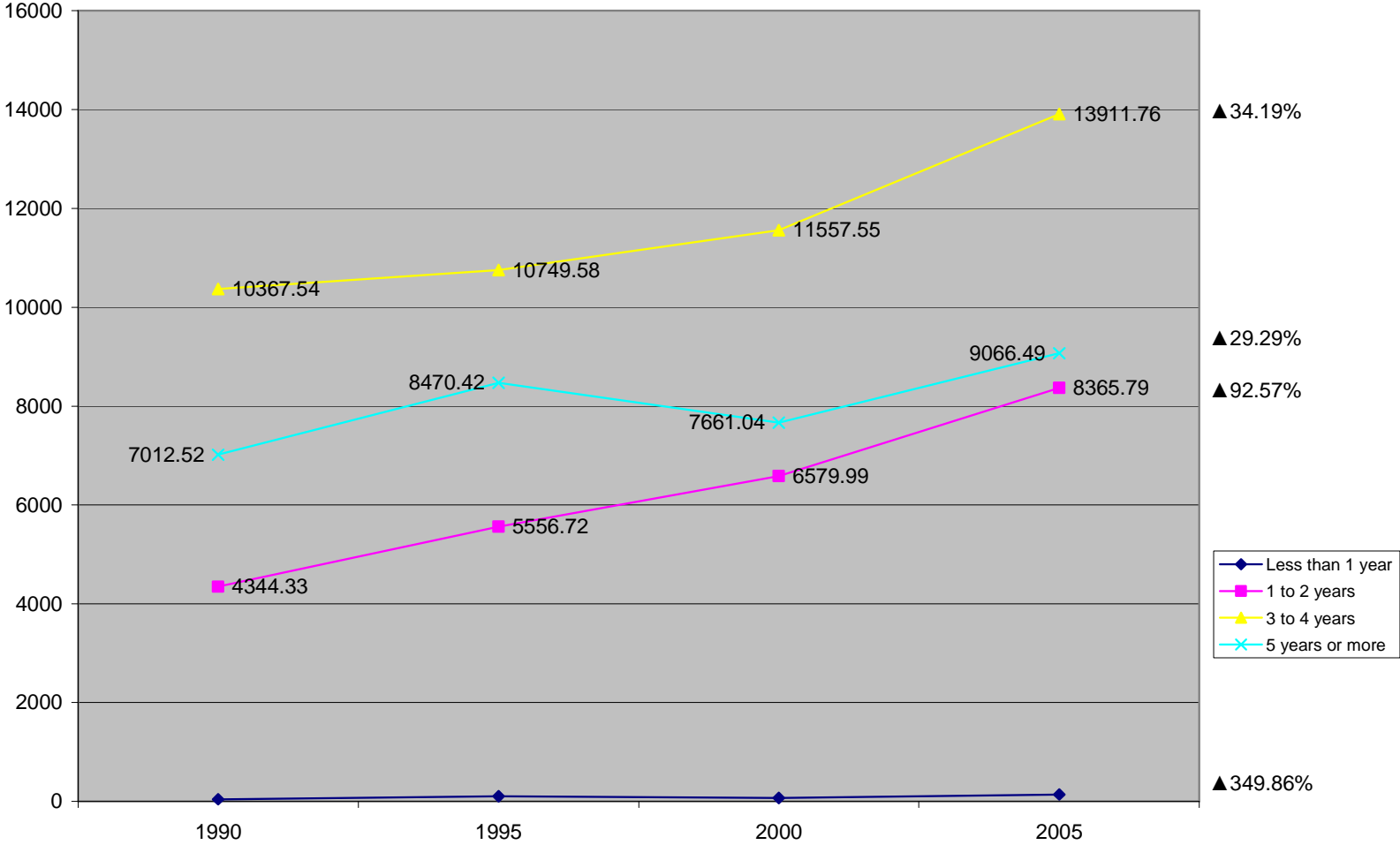


Figure 37: Time to completion among Undergraduate graduates (30+)

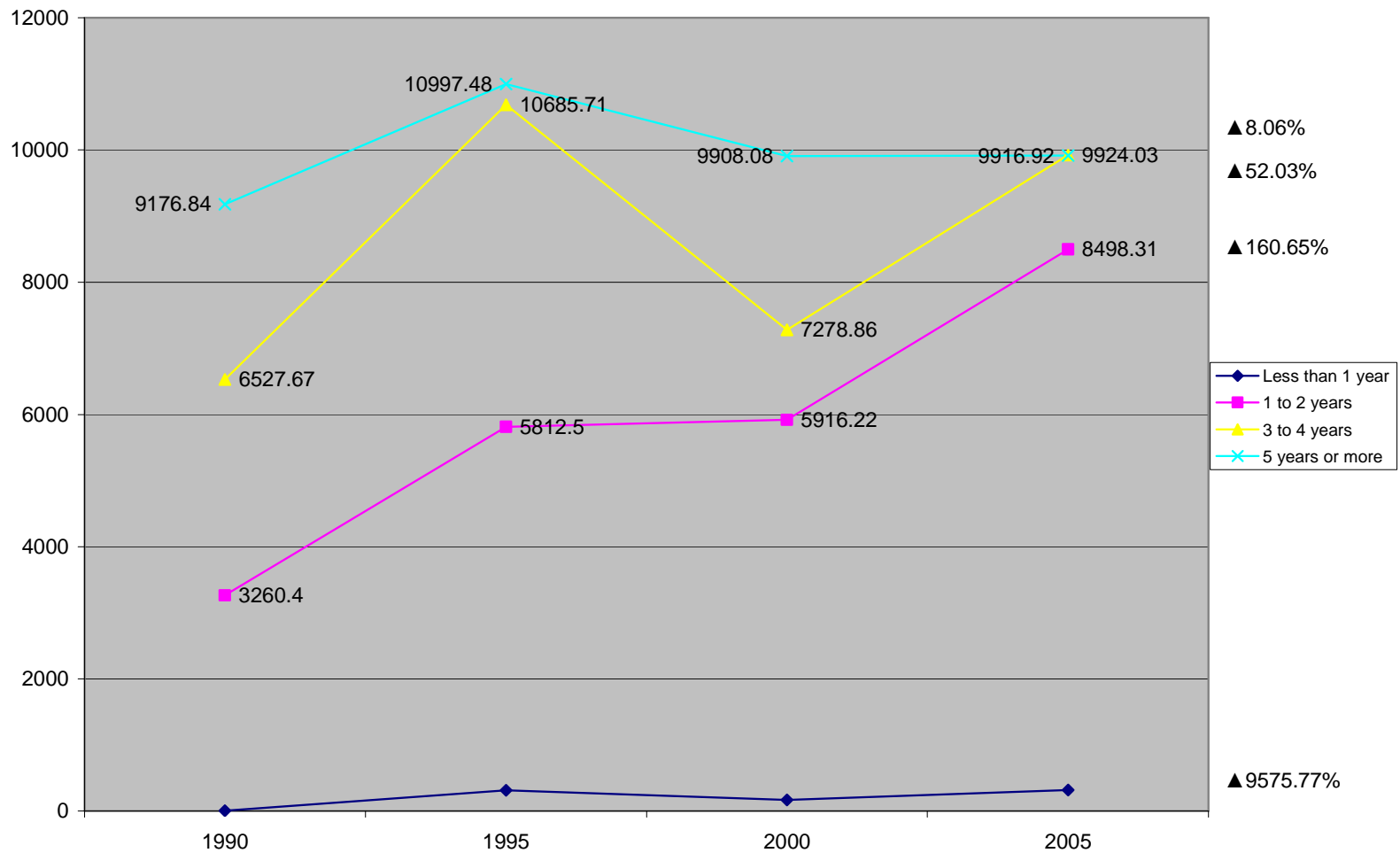


Figure 38: Time of completion among Undergraduate Diploma/Certificate graduates (16-24)

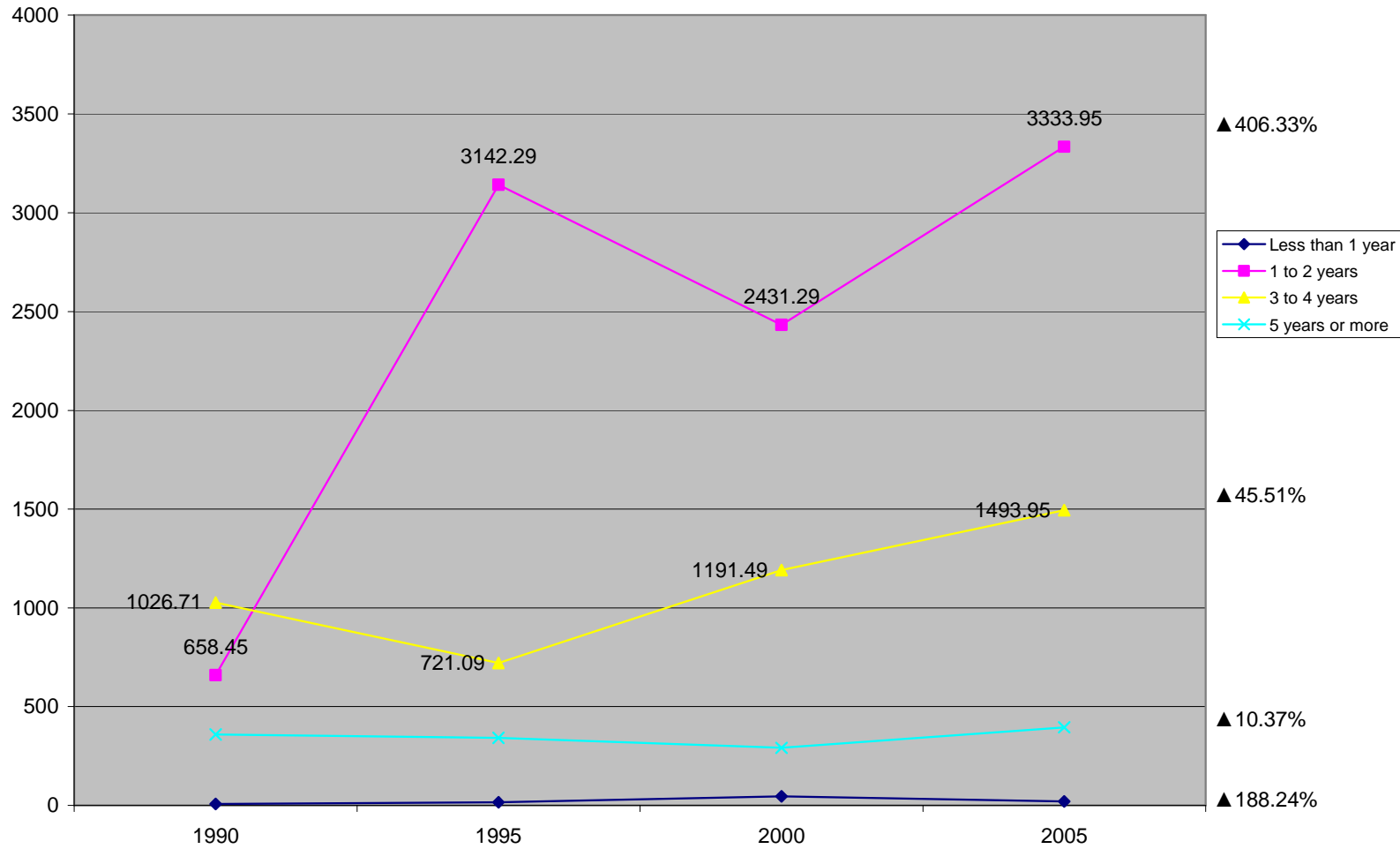


Figure 39: Time to completion among Undergraduate Diploma/Certificate graduates (25-29)

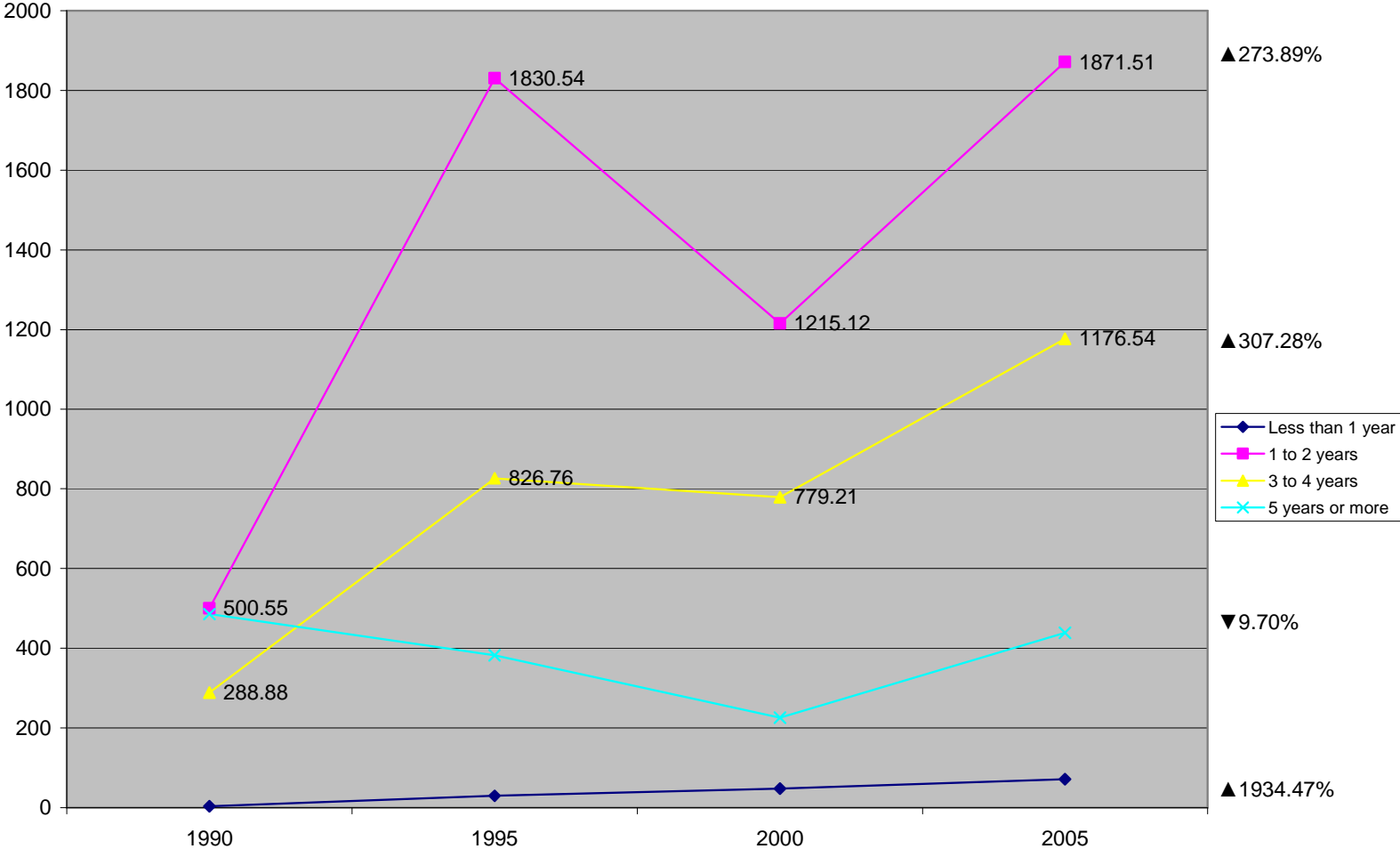


Figure 40: Time to completion among Undergraduate Diploma/Certificate graduates (30+)

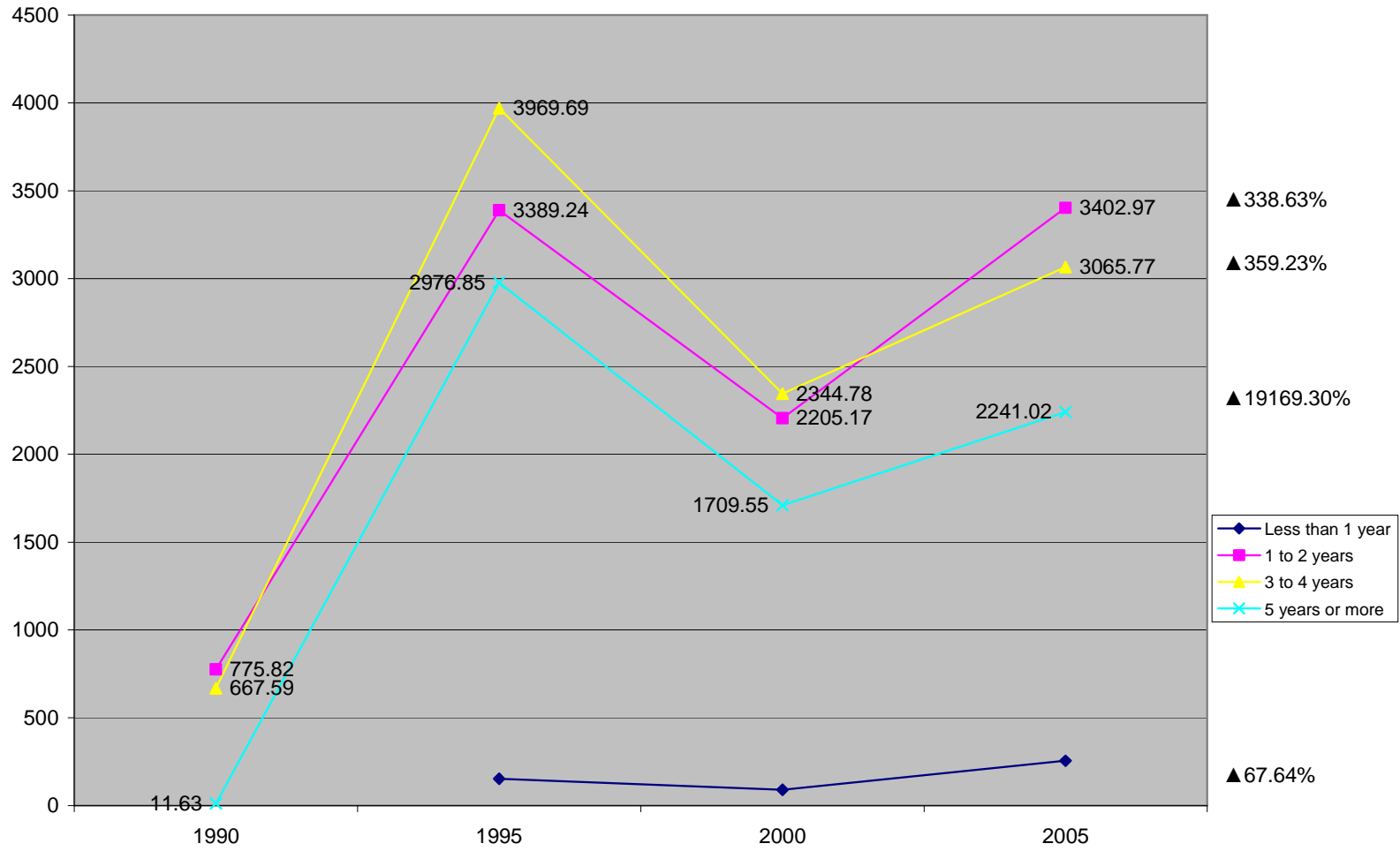


Figure 41: Time of completion among Bachelor graduates (16-24)

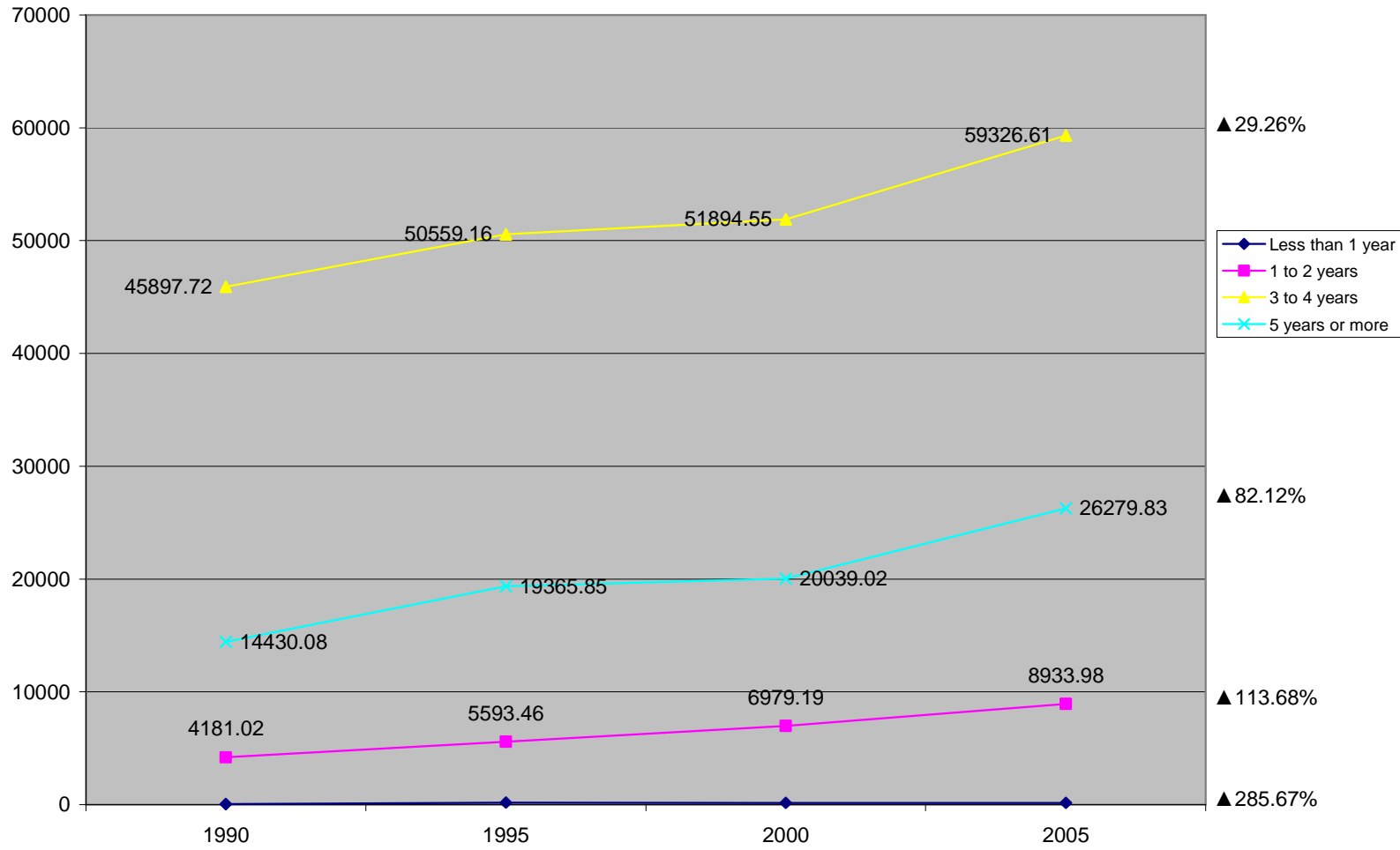


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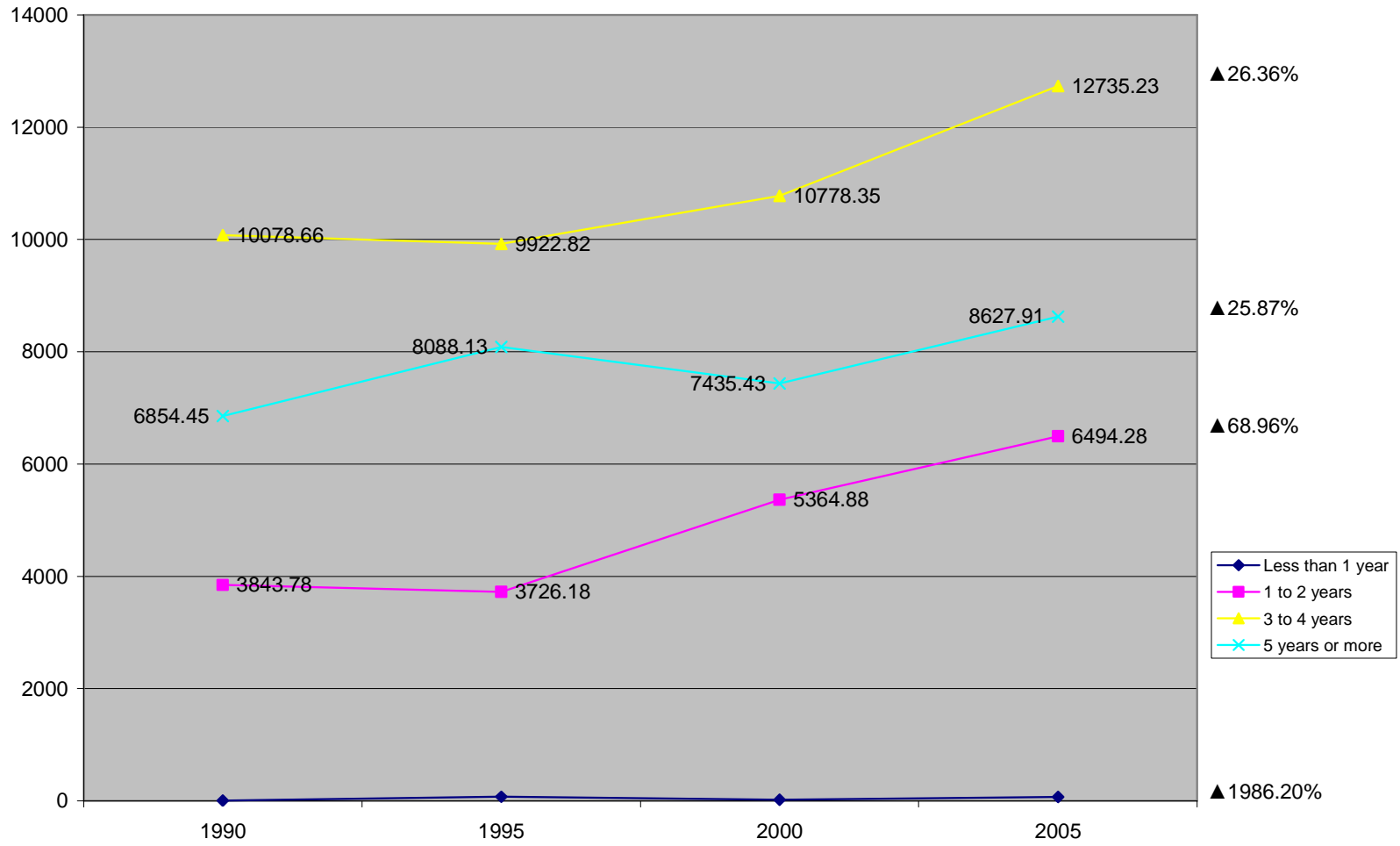


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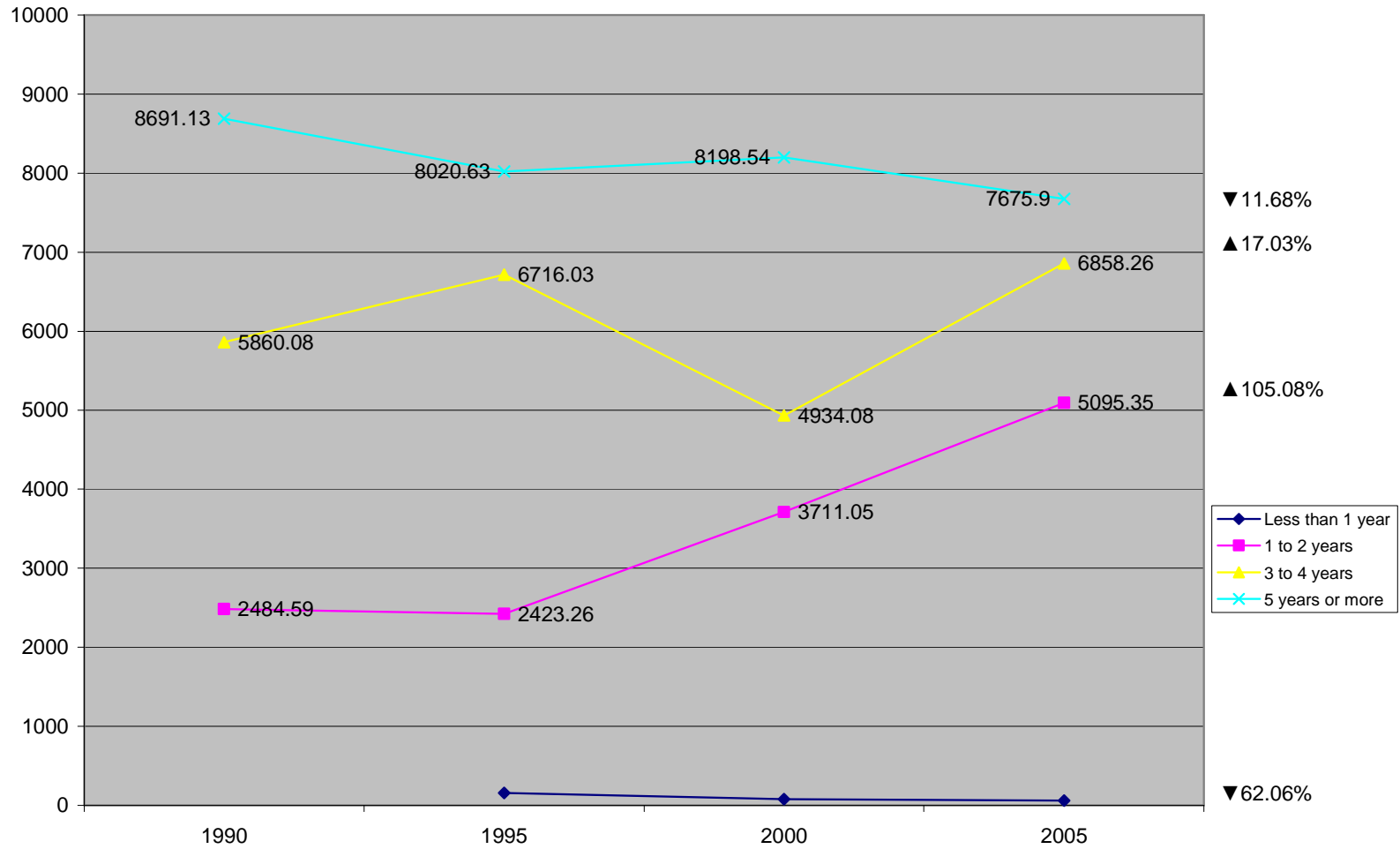


Figure 44: Time of completion among Master graduates (16-24)

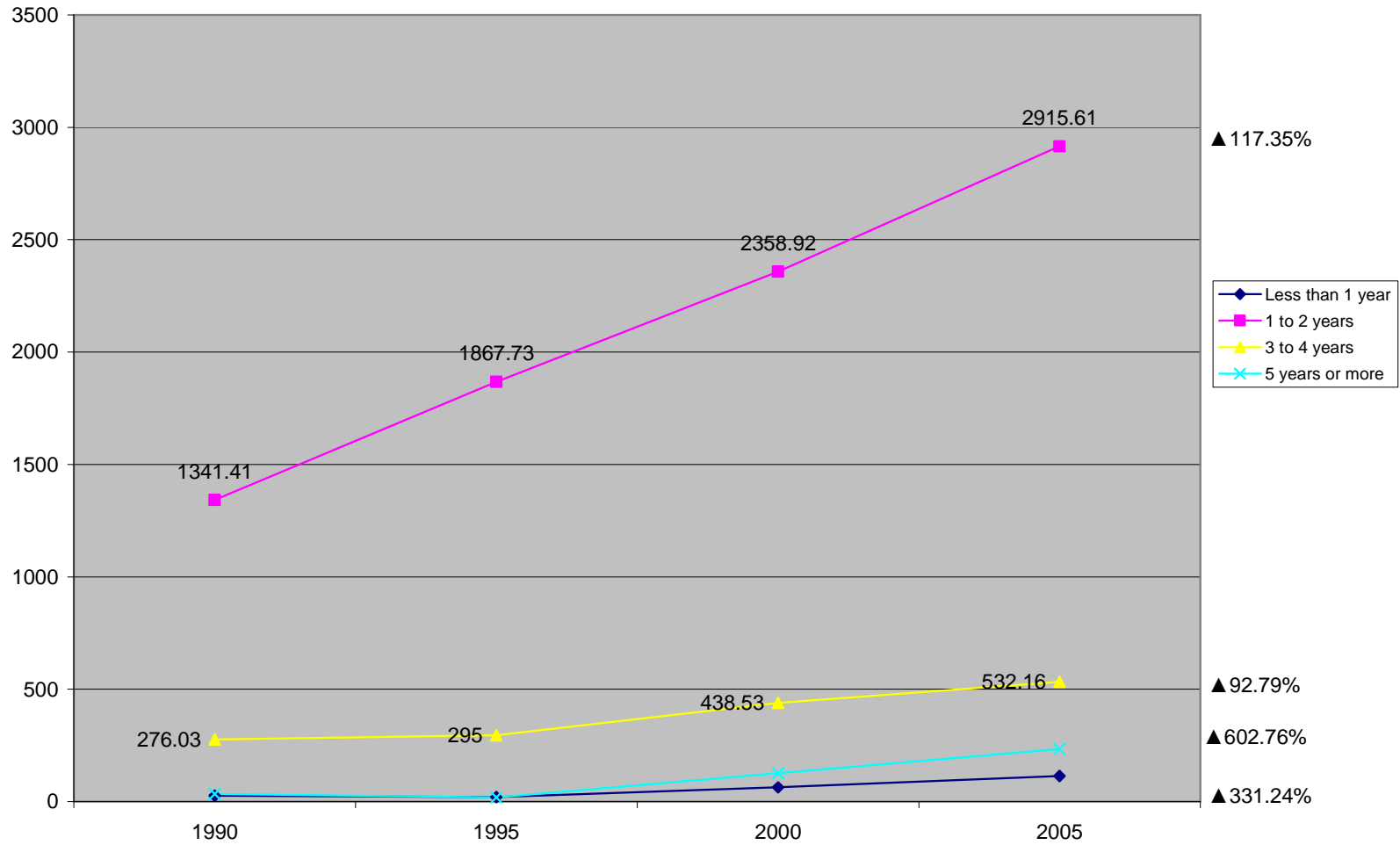


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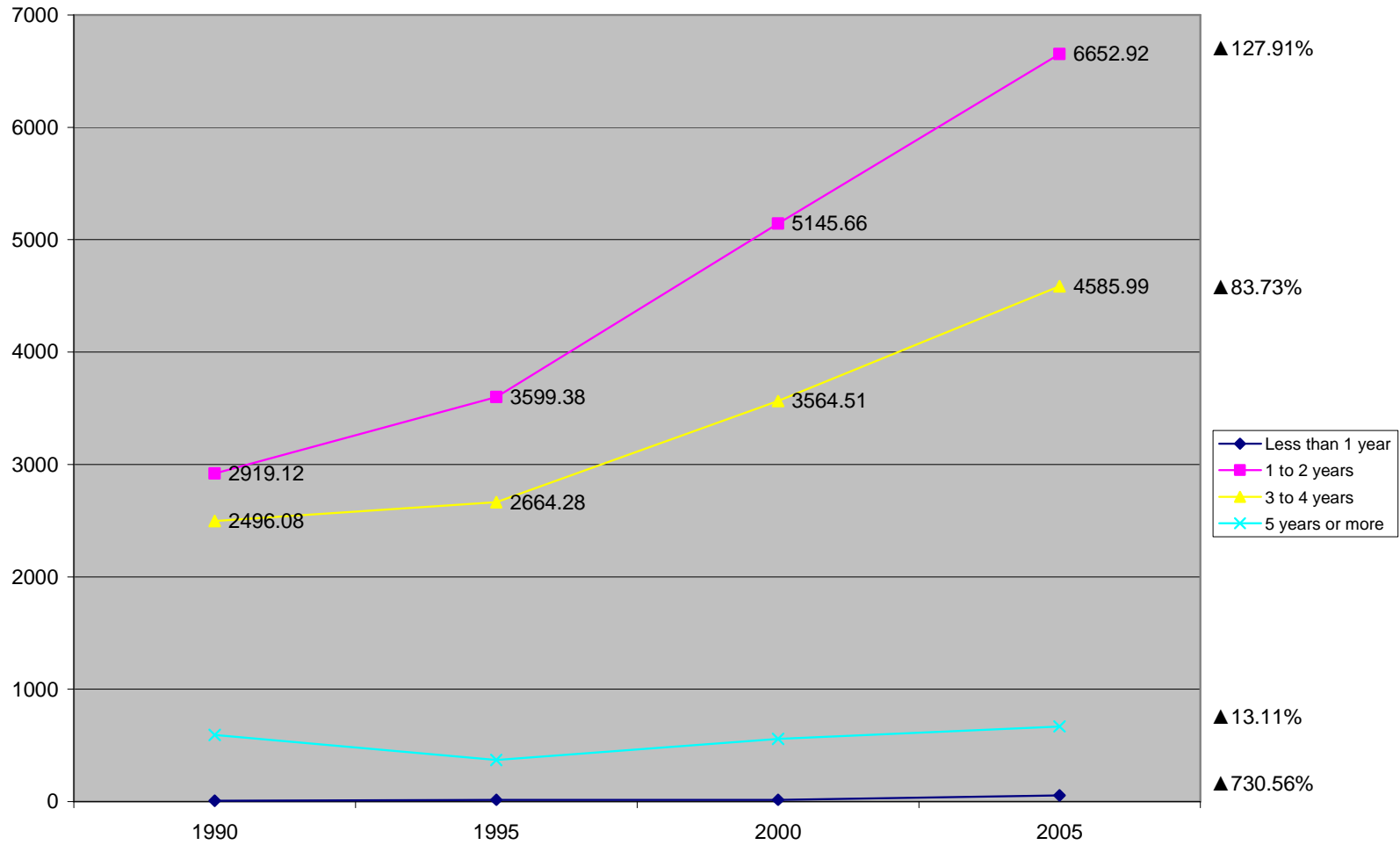


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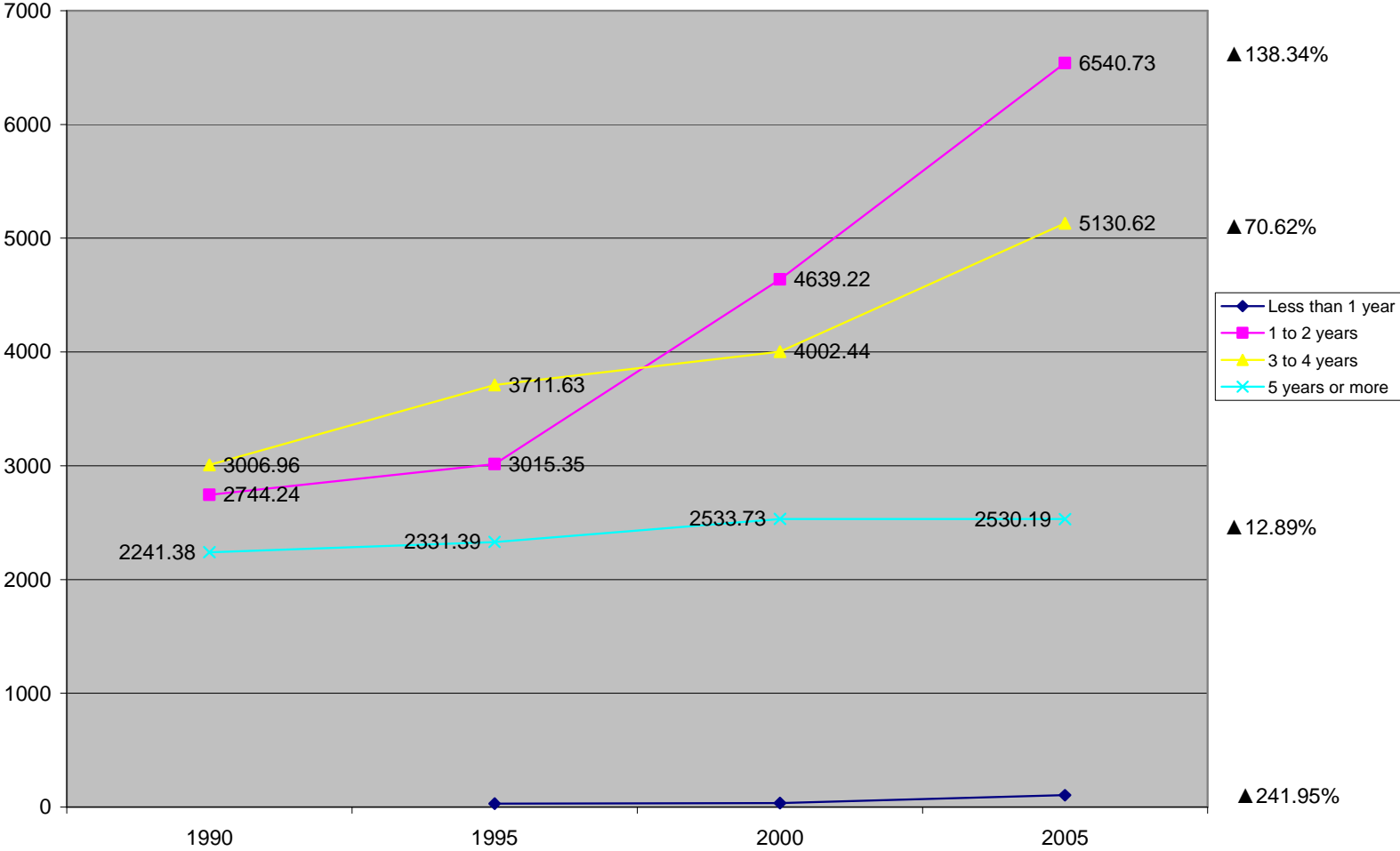


Figure 47: Time of completion among Doctorate graduates (16-24)

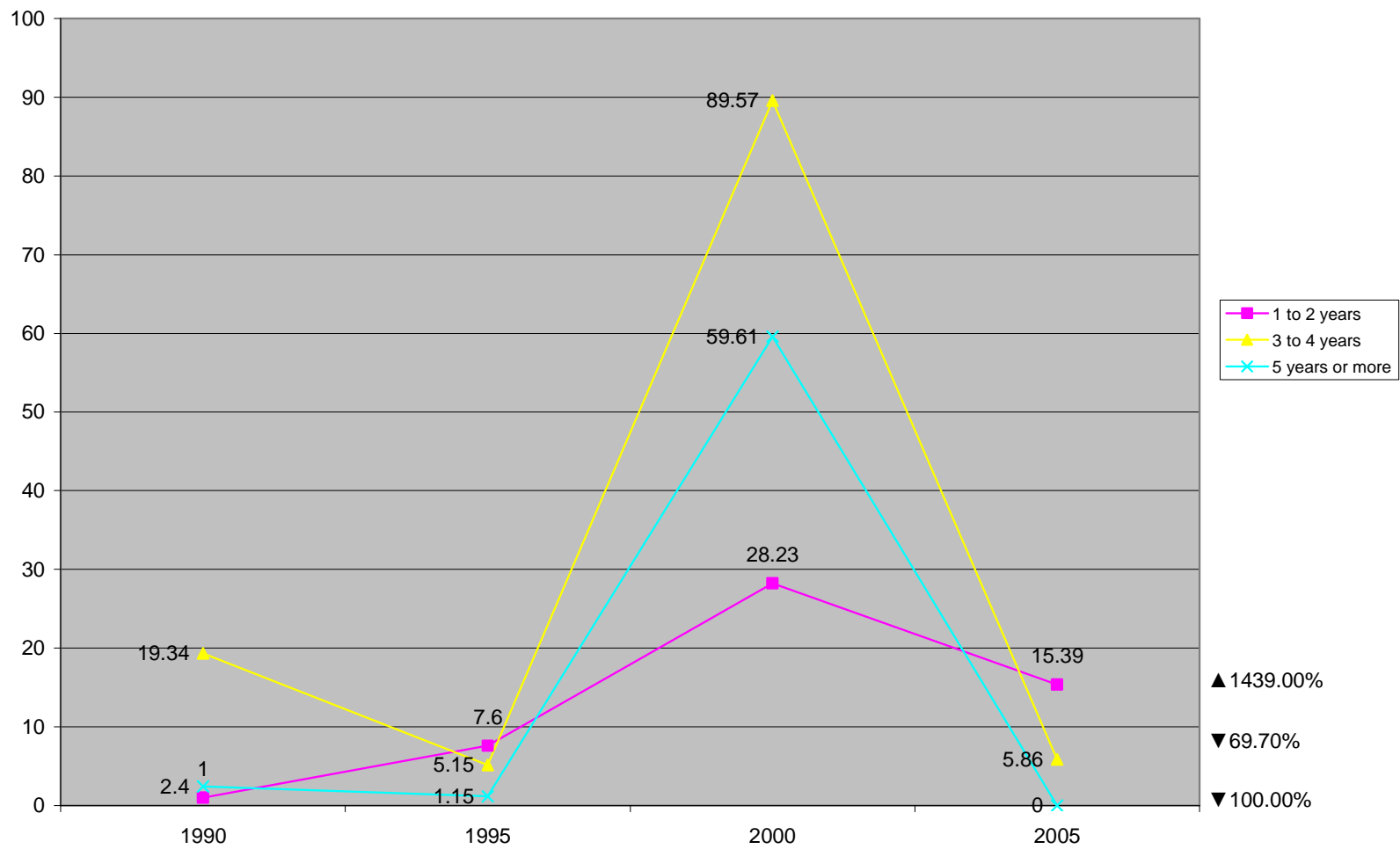


Figure 48: Time to completion among Doctorate graduates (25-29)

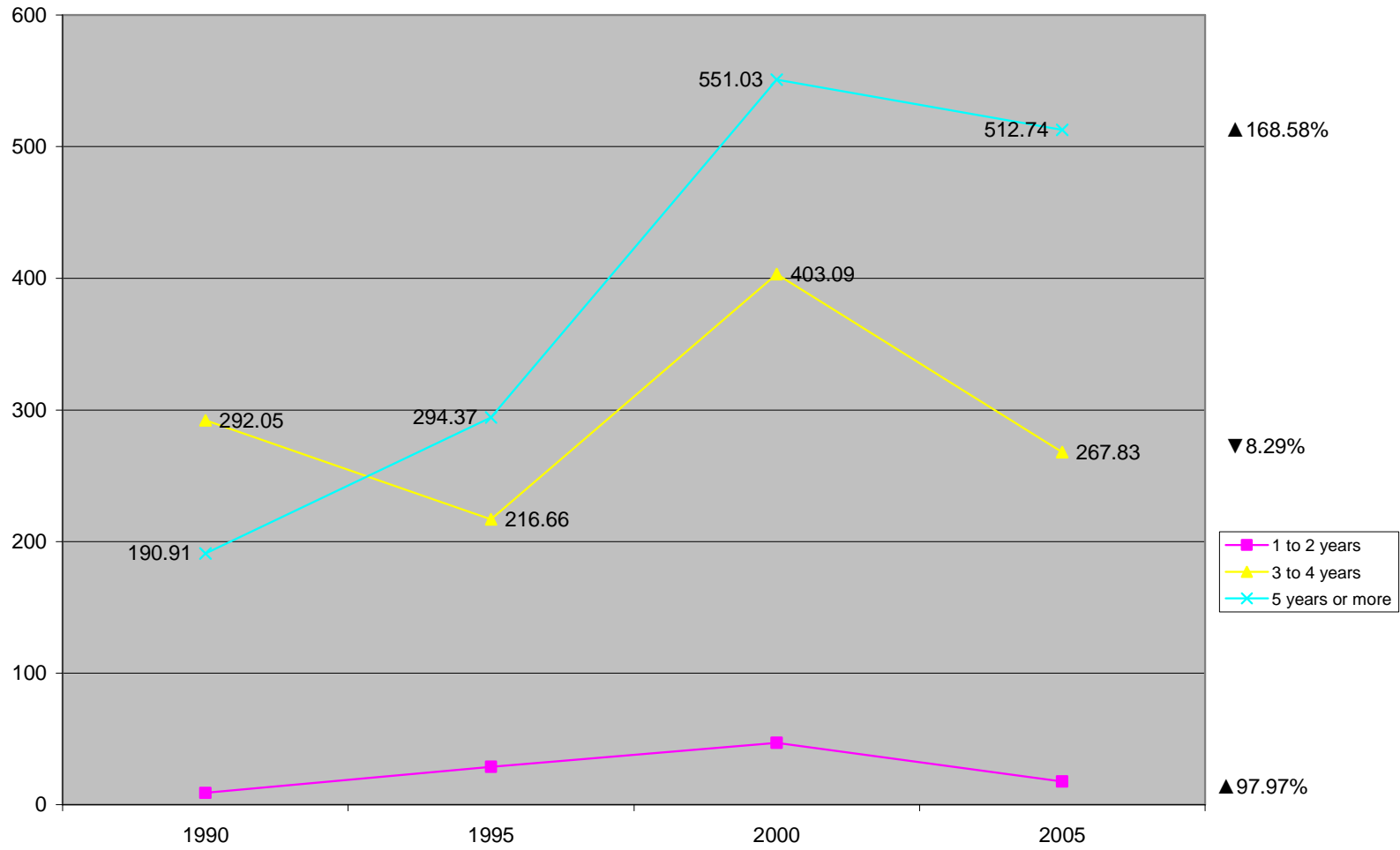


Figure 49: Time to completion among Doctorate graduates (30+)

